

COMMERCIAL REFRIGERATION & AIR CONDITIONING

JANUARY 1954

FRANCHISE
CIRCULATION

DOLLARS

1 Billion

A BILLION-DOLLAR INDUSTRY — AND STILL GROWING

Manufacturers' sales of air conditioning and commercial refrigeration equipment exceeded \$1 billion in 1953, according to industry-wide estimates. Since 1947, the industry's volume has increased by 50%. With air conditioning in all phases making the most notable gains, over-all industry volume should register a major growth in 1954.

900 Million

800 Million

700 Million

600 Million

500 Million

400 Million

1947

1948

1949

1950

1951

1952

1953

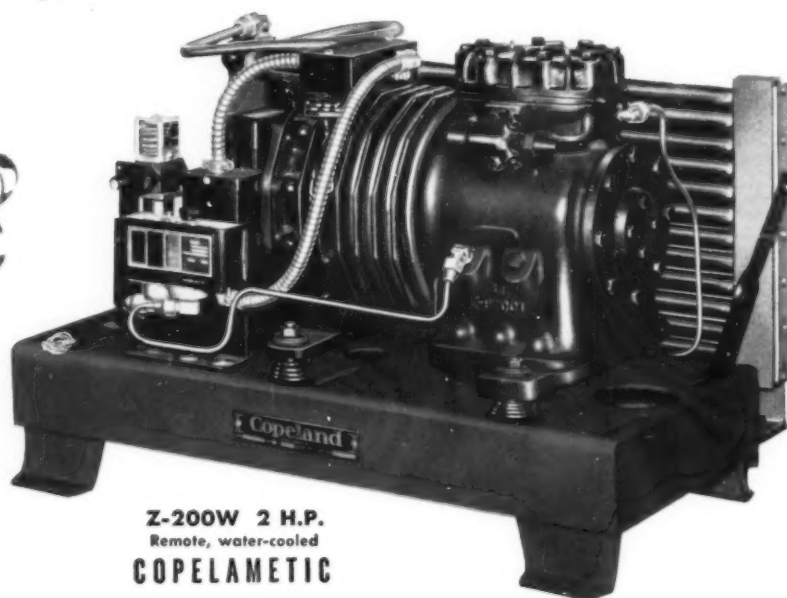
1954

MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT



COPELAMETIC

THE *Accessible* HERMETIC



Z-200W 2 H.P.
Remote, water-cooled
COPELAMETIC

You'll find quicker acceptance, greater customer satisfaction when you sell Copelametic, the Accessible Hermetic. They appreciate the direct-drive unit that says goodbye to belts, seals and manual oiling. They value the practical feature of accessibility.

gives you a "ready-made" market

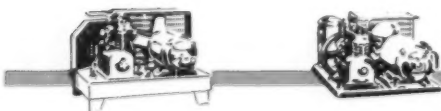
Everywhere refrigeration is used, Copelametic, the Accessible Hermetic, is known for efficiency and economy. Remarkable performance has

made Copelametic a product others are following. Consistent advertising tells every refrigeration prospect the advantages of Copelametic, the Accessible Hermetic. The market is there. It's up to you to supply it.

sizes for all applications

Air-cooled Copelametics range from $\frac{1}{4}$ H.P. through 3 H.P., water-cooled from $\frac{1}{3}$ H.P. through $7\frac{1}{2}$ H.P. There are self-contained models for all practical applications.

Write for Condensed Catalog C-52A.



REFRIGERATION UNITS (OPEN TYPE AND
COPELAMETIC) WATER COOLERS

Copeland
DEPENDABLE *Electric* REFRIGERATION



COPELAND REFRIGERATION CORPORATION • SIDNEY, OHIO

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available in 2 types:

- **STRAIGHT-THROUGH CONNECTIONS**
- **ANGLE CONNECTIONS**

Now you can choose the "T" Series Valve that best fits each job—any location.

inside...they're identical

Parts are interchangeable.

They're simple to service without removing the body from the line. To adjust superheat, just unscrew the seal cap and turn the stem.

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Designers and Manufacturers
of Thermostatic Expansion
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Regulators; Solenoid Valves;
Float Valves; Float Switches.

STRAIGHT-THROUGH CONNECTIONS

ALCO

ANGLE CONNECTIONS

more in '54

EXPANDED PRODUCTION



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TWO NEW BRUNNER CATALOGS!**

The most informative, helpful refrigeration catalogs ever! Catalog No. 47 covers complete Brunner line (open type — F-12 and F-22) up to 10 H.P. Catalog No. 48 contains all Brunner units (F-12 and F-22) from 15 H.P. to 75 H.P. Ask your Brunner Distributor — or write us!



**More Brunner units
mean more
profits for you...**

With our recent plant expansion — and the addition of an entirely new plant at Gainesville, Georgia—Brunner now offers the most complete line of refrigeration condensing units in the industry!

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NEW BRUNNER CATALOGS . . .

— the most complete and helpful catalogs ever assembled, are now ready for you. See your Brunner distributor or write us today . . .

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The Brunner Co., Gainesville, Ga.

In Canada: Brunner Corp. (Canada) Ltd., Toronto, Ontario

BRUNNER
SINCE 1906

means
more in '54

BRUNNER REFRIGERATION IS ADVERTISED IN THE SATURDAY EVENING POST
Circle No. 3 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

Established in 1944 as
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COMMERCIAL REFRIGERATION & AIR CONDITIONING

JANUARY, 1954

VOLUME 11, NO. 1

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ELECTRIC MOTORS
... the choice of leaders
in industry

Wagner Hermetic Motors

help insure your sealed units against motor failure

When your motor drives are to be hermetically sealed in compressor units, whether of the "accessible" type or in a completely sealed compressor housing, it's to your advantage to specify Wagner Hermetic Motors for use on your equipment. Here's why...

Hermetically sealed compressors demand motor parts that will operate with great dependability for years and years. They must insure the sealed unit against motor failure because your product gets the blame when the motor fails.

Wagner Hermetic Motors, like all Wagner motors, are known to give extremely long life with exceptionally little trouble. They are backed by more than sixty years of motor building experience. Every Wagner hermetic motor is precision-built and carefully tested.

Benefit by Wagner's experience—let a skilled Wagner engineer help you select the motor drive for your next application. Call the nearest of our 32 branch offices, or write us.

Wagner Hermetic Motor of the type used in air conditioners. This 7½ horsepower polyphase squirrel-cage motor is especially designed for use in sealed refrigeration units.

Hermetically sealed compressors for air conditioners and refrigerating equipment are rapidly gaining preference because of the great convenience they offer to users of the equipment—there is nothing to oil or adjust, no belts to fail.

Standardize with Wagner:

Wagner Motors are the choice of many leading equipment manufacturers for several basic reasons:

First, Wagner Motors, for over sixty years, have established unexcelled records for continuous, trouble-free performance. Second, Wagner Motors are well known for their superior quality and their sturdy design and construction. Third, the many types of motors and motor modifications in the standard Wagner line help the design engineer in his selection of the right motor for the job.

Wagner
Electric Corporation
EST. 1891

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BRAKE SYSTEMS—
AIR AND HYDRAULIC

#54-2

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JANUARY, 1954 • COMMERCIAL REFRIGERATION

~~hundreds~~ ~~thousands~~ **millions**
**OF ADDITIONAL PROSPECTS NOW CREATED
 FOR ROOM AIR CONDITIONING...**



announcing

THE REVOLUTIONARY NEW CHRYSLER AIRTEMP ROOM AIR CONDITIONER FOR casement windows!

It's the first of its kind! It's the product which millions of people in homes and apartments with casement type windows have needed to enjoy the health and comfort benefits of room air conditioning. It's the Room Air Conditioner *you need* to spearhead the most profitable selling season you have ever known!

Here is a Room Air Conditioner of genuine Chrysler Airtemp quality throughout—designed for quick, easy installation in

casement windows. Unit is mounted entirely from inside—the same way a screen is installed. Nothing projects outside window frame to interfere with opening, closing or locking of window. And this new casement type unit, just like all of the other Chrysler Airtemp models, gives you the selling advantage of advanced engineering features which mean more to the prospect—in terms of efficient, dependable, economical air conditioning.

Now, more than ever before, it will pay you to become a Chrysler Airtemp Dealer. Send coupon today for complete details of the greatest money-making opportunity in the history of room air conditioning!

CHRYSLER AIRTEMP
AIR CONDITIONING for HOMES, BUSINESS, INDUSTRY

Airtemp Division, Chrysler Corporation, Dayton 1, Ohio

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and AIR CONDITIONING • JANUARY, 1954

Airtemp Division, Chrysler Corporation CR&AC-1-54

P.O. Box 1037, Dayton 1, Ohio

Yes, we're interested in the most profitable dealer's deal in Room Air Conditioning—send complete details.

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Sound profits and stay-put repairs go together. That's why the majority of refrigeration and motor repairmen choose Aerovox motor-starting capacitors. They know that Aerovox pioneered this particular capacitor application; that Aerovox continues to supply the outstanding data; that Aerovox offers universal types and exact-duplicate types for every standard capacitor-start motor; and that Aerovox replacements are immediately available anywhere through local suppliers. Don't settle for less!

GET THE FACTS

Write us or ask your supplier for the latest Aerovox motor-starting capacitor manual. And count on Aerovox for the right capacitor for the right job, every time.



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Circle No. 6 on Reader Service Card

it's the LAW!

by Albert Woodruff Gray

Legal problems are an inherent part of operating any business enterprise. If you are beset by them, you'd better talk to your lawyer. This column, which will appear periodically in the issues of **COMMERCIAL REFRIGERATION AND AIR CONDITIONING**, in no way aspires to serve as legal counsel for our readers. It is prepared, however, by a man well versed in legal practices and opinions, and by presenting digests of actual court cases involving commercial refrigeration and air conditioning dealers and contractors we hope to enable our readers to sidestep some of the legal pitfalls into which they otherwise might unwittingly stumble.

—The Editors

REFRIGERATING PLANT PART OF REALTY

REFRIGERATING machinery and equipment, installed in a building in North Dakota by a tenant who conducted a slaughter house and later became bankrupt, was sold by his trustee in bankruptcy.

The purchaser of this refrigerating machinery from the trustee then leased the building in which the machinery was still installed and converted the former slaughter house into a creamery and milk processing plant. Six years later when the purchaser of this machinery terminated its tenancy and vacated the building it took with it this machinery it had purchased from the bankruptcy trustee of the former tenant.

Suit was brought against the creamery by the owner of the building for damages for the removal of the refrigeration plant under the claim that he owned it as a part of the building. A judgment was rendered against the creamery company for \$4,846.10 and last year affirmed by the Supreme Court of North Dakota with this statement of the law,

"A thing is deemed to be affixed to the land when it is attached to it by roots, as in the case of trees, vines or shrubs, or imbedded in it as in the case of walls or permanently resting upon it as in the case of buildings or permanently attached to what is thus permanent, as by means of plaster, nails, bolts or screws.

"The former tenant affixed the cooling and refrigerating plant to the premises by means of cement, nails, bolts and screws without an agreement permitting him to remove it. Under the statutory

law it would appear to have become a fixture and so affixed to the land as to belong to the owner of the land."

Gussner v. Mandan Creamery & Produce Co., 51 N.W.2d 352, North Dakota

NATIONAL USERS' SALES

THE salesman for a distributor of refrigerating equipment was employed at a salary of \$75 a week, traveling expenses, and a "2% override on all national users' sales sold by the company in metropolitan Philadelphia."

Later, when a sale of approximately \$50,000 worth of equipment was made directly by the company to a purchaser in metropolitan Philadelphia undertaking to operate as a nation wide distributor, the salesman claimed commissions of \$1,012, 2% on "national users' sales." The company refused to pay, maintaining that the clause referred to purchases by chain stores that are national in their scope and not to buyers with merely national distribution.

In sustaining a verdict of the jury in favor of the salesman the appellate court said,

"The jury could reasonably find that the contract of employment was intended by both parties to include commissions to salesmen upon such sales as this one admittedly made in metropolitan Philadelphia."

McKee v. Elliott-Lewis Electrical Co., 11 Atl. 2d 551, Pennsylvania

DAMAGES FOR DEFECTIVE EQUIPMENT

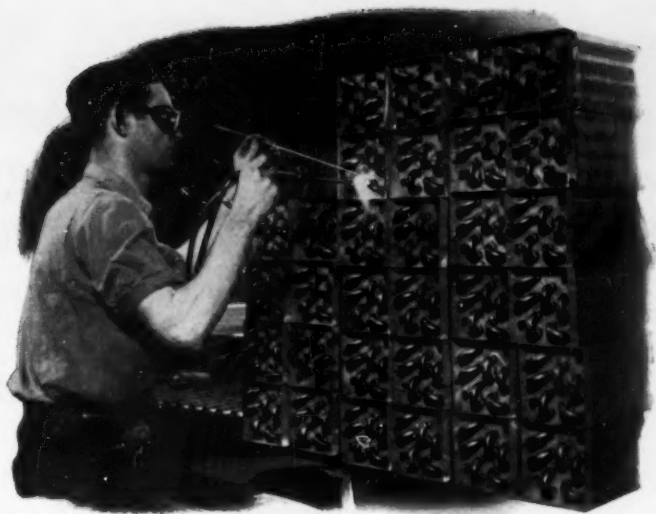
A DEALER in North Carolina sold a meat display refrigerator box and took in payment the buyer's note for \$350. The dealer assured this customer at the time of the sale that the meat box was in first class condition and amply adequate for the preservation of fresh meat.

When the purchaser failed to pay his note the dealer sued and the buyer's defense to the lawsuit was a counterclaim for \$500 in damages incurred through the misrepresentations of the dealer.

In his charge to the jury, which allowed the buyer a reduction of \$100 from the amount of the note, the court asserted that the rule for determining the damages was that the measure of the damage was the difference between the value of the box which the dealer delivered and the value of the box which the dealer represented it to be, in addition to repairs, expenses and the amount lost by meat spoiling from the defects of the equipment.

It is, in the words of one of the courts, the difference between what the customer bought and what he got that the dealer must credit or refund.

A buyer in Mississippi purchased a porcelain refrigerator display case that



PRACTICAL TORCH BRAZING INSTRUCTIONS in these two FREE bulletins

- These two bulletins give complete step-by-step instructions for brazing fittings to pipe and tubing with the low-temperature silver brazing alloys EASY-FLO and SIL-FOS. They tell —how to cut and fit pipe and tubing—how to clean and flux surfaces to be joined—how to support assemblies for brazing—how to heat and apply the alloy. They cover the making of pipe and tubing joints in vertical up, vertical down and horizontal positions.

Here is useful information for anyone and everyone interested in knowing how to make strong, permanently leak-tight joints in ferrous and non-ferrous piping and tubing with the oxyacetylene torch.

WRITE FOR YOUR COPIES TODAY

Ask for Bulletin 17 and the "Torch Brazing Instruction Bulletin."



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Servicemen Agree...

BEACH-RUSS PORTABLE VACUUM PUMPS are made with features they desire

High Performance Characteristics

Completely Portable

Automatic Lubrication

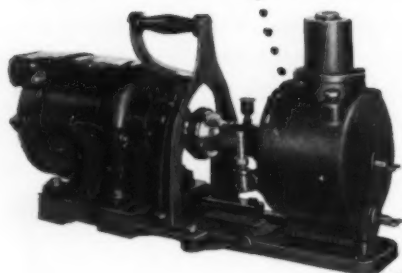
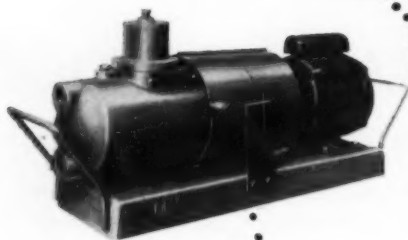
Single- or Two-Stage

Long Life

Quiet Operation

Minimum Attention

Valves Eliminated



Beach-Russ Vacuum Pumps are also made in types and sizes for evacuation and testing of refrigeration equipment on a production basis.

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Send descriptive literature covering ☐ Model O Single-Stage Vacuum Pumps.
☐ Model A Two-Stage Pumps.

Name.....
Company.....
Address.....
City..... Zone No. State

BEACH-RUSS COMPANY
56 CHURCH STREET • NEW YORK 7, N. Y.

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was delivered in apparently good condition and installed in a meat and grocery store. After about three weeks the machine failed to function as had been anticipated.

The manufacturer attempted unsuccessfully to repair the refrigerator and later sued for \$458.22, the balance remaining unpaid under the sales contract. In measuring the damage in this instance the Mississippi court said,

"There was no express warranty in the written contract under consideration but there was an implied warranty on the part of the manufacturer that the equipment would reasonably perform the services for which it was manufactured and sold.

"The difference in the value at the time he bought it with an implied warranty that it would reasonably perform the services for which it was manufactured and sold, and at the time he received it," was there asserted to be the measure of the damages to which the purchaser was entitled.

Another instance of this character occurred in Kentucky a few years ago when refrigerating equipment was purchased for use in a fur storage room. The system gave trouble from the beginning of its operation in failing to produce the refrigeration that had been promised the purchaser.

Again in that case this well nigh universal rule for measuring damages incurred from the purchase of defective equipment was applied. "The difference between the value of the goods at the time of delivery to the buyer and the value they would have had if they had answered to the warranty."

Harris v. Canady, 73 S.E.2d 559, North Carolina

Viking Refrigerators v. Farrell, 176 So. 910, Mississippi

Rudolph Wurlitzer Co. v. Kaufman-Straus Co., 116 S.W.2d 305

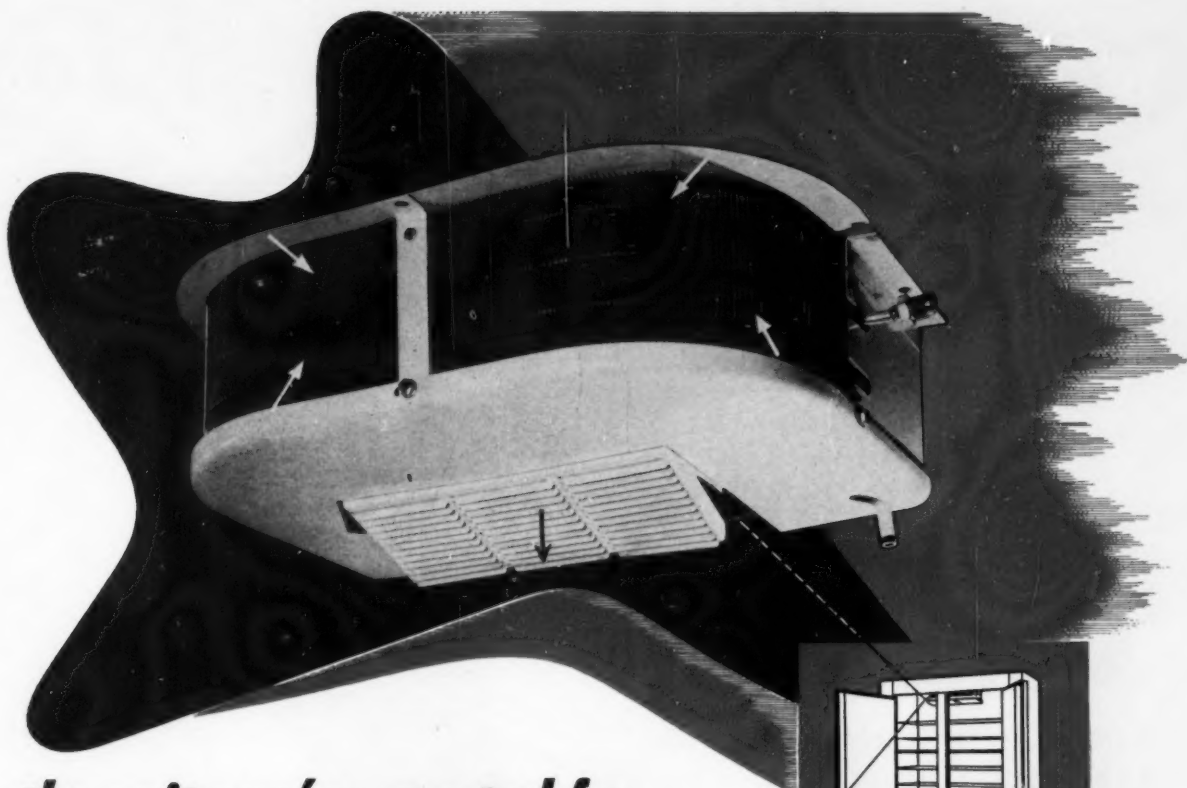
HOWARD NAMES LARRABEE CALIF. REGIONAL MGR.

In a move to intensify field sales operations, Howard Refrigerator Co. has opened West Coast outlets and has appointed Duane E. Larrabee regional manager of the California territory.

Larrabee will be in charge of both the domestic and commercial Howard line.

Howard has completed its government contract work and is adapting its 80,000 sq.ft. of manufacturing space to the production of freezers, beverage coolers, and refrigerators.

Air conditioning units will be manufactured at another location acquired for that specific purpose.



the unit you've wanted for reach-ins . . . THE BUSH DJ

They're compactly designed and ceiling mounted to allow complete use of shelf space in reach-in refrigerators.

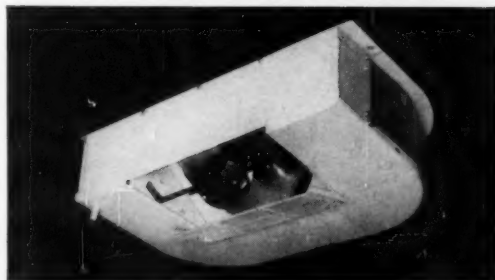
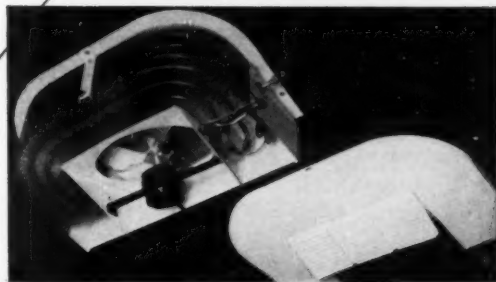
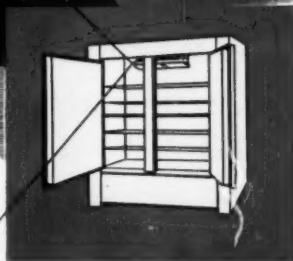
Air moves through the coil and down the back wall, providing perfect diffusion of air circulation that eliminates air blasts . . . minimizes dehydration of produce.

Fans on Bush DJ Units are completely and safely guarded . . . motors permanently lubricated. A TX valve can easily be mounted inside the case.

Removable drain pan permits ready accessibility to all parts, and durable finish of baked white enamel on entire exterior provides attractive appearance.

Bush DJ Unit Coolers are available in four different sizes, to meet varying requirements. All have customary conservative Bush ratings.

Specification sheet free on request.



BUSH MANUFACTURING COMPANY

WEST HARTFORD 10, CONNECTICUT



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Prepare Now

for the Profitable Jobs...

with the expanded line of

Curtis

AIR CONDITIONING AND REFRIGERATION EQUIPMENT

This complete line of CURTIS equipment assures highest possible efficiency, dependability and quality... at a price that is profitable for you.

Not only will you be equipped to handle any installation but you will be selling equipment that is accepted the world over, and that is proven by 100 years of successful manufacturing experience.

To help you sell more CURTIS Air Conditioning and Refrigeration equipment, it is nationally advertised in *Saturday Evening Post*, *Time* and *Newsweek*, plus many other national magazines.

For immediate information on how to make your operation more profitable, mail this coupon for details of how you may secure a direct factory franchise:

CURTIS REFRIGERATING MACHINE DIVISION

of Curtis Manufacturing Company

1915 Kienlen Avenue, St. Louis 20, Missouri

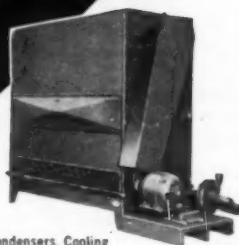
I am interested in direct factory franchise. Send complete details.

Company Name.....

Street.....

City.....Zone.....State.....

Signed.....



Evaporative Condensers, Cooling Towers and Air Handling units to match



Packaged Air Conditioners—2, 3, 5, 7½, 10 and 15 tons



Condensing units—through 50 tons



Residential cooling and heating units



New 1954 Curtis Room Air Conditioner in three popular sizes.

CURTIS REFRIGERATING MACHINE DIVISION

1915 Kienlen Ave. — St. Louis 20, Mo.

Circle No. 10 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

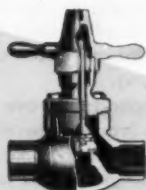
Every Henry Valve, Drier and Strainer
is constantly being improved to retain
the confidence of the Air Conditioning
and Refrigeration Industry in the
complete line of Henry products.

HENRY

VALVES, DRIERS & STRAINERS



Relief Valve



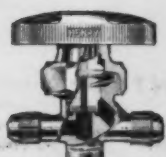
Wing Cap Valve



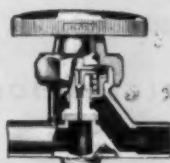
Drier



Ammonia Valve



Packless Valve With
Balanced-Action
Blue Bantam Type



Packless Valve With
Balanced-Action
Standard Type



"Y" Strainer



Angle Type Drier

Henry Valve Co.



Melrose Park, Illinois (Chicago Suburb)
Cable: Hevalco, Melrose Park, Illinois

Valves • Driers • Strainers • Control Devices and Accessories for Refrigeration • Air Conditioning and Industrial Applications

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Identifies quality controls



The Air Conditioning and Refrigeration Industry
relies on

ALLEN-BRADLEY TROUBLE FREE MOTOR CONTROLS

These manufacturers can give you the reason for the popularity of Allen-Bradley starters and controls in the air conditioning and refrigeration business. Basically, this reputation is established on only one moving part in Allen-Bradley starters. There are no pivots, pins, bearings, and similar "clap trap" to corrode, collect "gunk," and stick. You install Allen-Bradley starters . . . and take a look once or twice a year.

There is no contact maintenance . . . Allen-Bradley cadmium silver alloy contacts never need cleaning, filing, or dressing.

Dependable overload relays . . . Allen-Bradley thermal relays are dependable and remain accurate in their operation over the years!

Install Allen-Bradley motor controls in your equipment, today, for rugged, reliable performance.

Allen-Bradley Co., 1340 S. Second St., Milwaukee 4, Wis.

TYPICAL ALLEN-BRADLEY REFRIGERATION CONTROLS

SPECIAL REFRIGERA-
TION CONTROL UNIT



PRESSURE AND TEMPERATURE
CONTROLS



MANUAL
STARTER



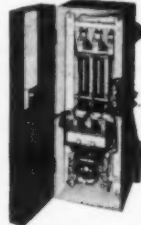
AUTOMATIC
STARTER



COMBINATION
STARTER



MANUAL REDUCED
VOLTAGE STARTER



ALLEN-BRADLEY QUALITY MOTOR CONTROLS

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JANUARY, 1954 • COMMERCIAL REFRIGERATION



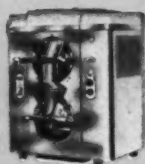
**TWO . . .
are better
than one!**

FREEZ-KING



DOUBLE FEATURE

Doubles Your Speed . . . Doubles Your Profits!



A FREEZ-KING MODEL FOR EVERY PURPOSE

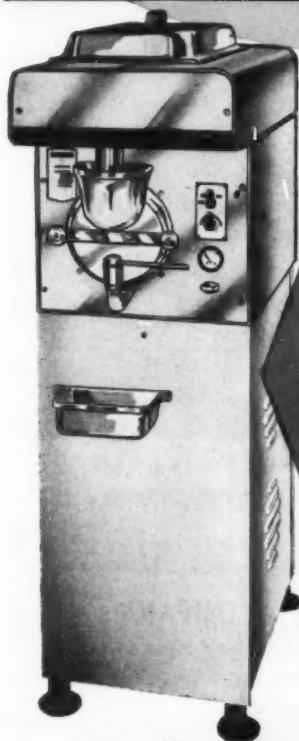
AMERICA'S MOST COMPLETE LINE

OF CONTINUOUS SOFT ICE CREAM FREEZERS



MODEL 950

King size power. Two complete freezers in one stand. Each unit operates independently. Every portion perfect. Exclusive Freez-King features include patented automatic feed, seeing eye dial, automatic temperature control, patented back feed. Amazingly simple to operate.



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for
\$54**

FREEZ-KING SHAKE DISPENSER

Draws Shakes Direct from Freezer at the Remarkable Speed of 360 an Hour!

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- Saves time . . . saves labor . . . increases profits.
- Requires minimum floor space . . . only 20 x 25 inches.
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- Attractive in design . . . sturdy in construction . . . efficient in operation.

The Freez-King Shake Dispenser is a boon to the fountain and drive-in trade.

DISTRIBUTORS: Exclusive franchises available. Write for details.

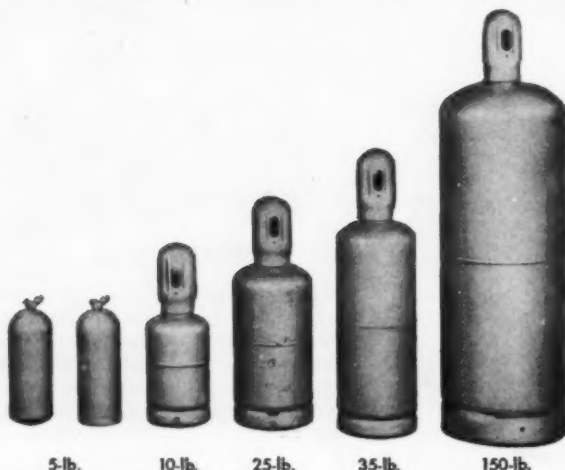
THE FREEZ-KING CORPORATION

2518 WEST MONTROSE AVE., DEPT. 10, CHICAGO 18, ILL.

Circle No. 13 on Reader Service Card

**DON'T
SETTLE
FOR LESS**

USE
Prest-O-Lite
Trade-Mark
**CYLINDERS FOR
REFRIGERANTS**



5-lb. 10-lb. 25-lb. 35-lb. 150-lb.

- ✓ Rugged, sturdy construction
- ✓ Uniform sidewall thickness
- ✓ Lightweight—easy to handle
- ✓ Finest workmanship
- ✓ Best appearance
- ✓ Tested far beyond all codes
- ✓ Extra years of trouble-free life
- ✓ They're economical!

You are *sure* that your refrigerant gas containers will give you many years of dependable service—and save you extra dollars—when you own PREST-O-LITE cold-drawn cylinders. They're built by the company which has been the largest manufacturer and *user* of compressed gas cylinders for almost half a century. In each step of design and fabrication the ultimate in gas containers is achieved—and this skill and experience is passed on to you with every PREST-O-LITE cylinder you get. It's no wonder that refrigerant cylinder buyers who have compared feature for feature have found out they are getting the greatest value with top-quality PREST-O-LITE cylinders.

Available in sizes ranging from 5-lb. to 150-lb. capacities—with valve, and cap on all but 5-lb. styles. A few of the popular squat-type cylinders are shown above. You'll like their good-looking appearance, with glossy metallic bronze finish. WRITE TODAY for full information and prices—select the PREST-O-LITE cylinder that fits *your* needs exactly.

MADE BY

Linde

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities

In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

Circle No. 14 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

ANACONDA REFRIGERATION PRODUCTS



OFF TO A GOOD INSTALLATION...

Why? Because the copper piping on this installation, as on *all* he makes, is going to be an all-Anaconda job. Uniform temper and exact fitting for fast connection speed up his work... help maintain his reputation for quality. He buys only

from his regular wholesaler and gets the prompt, reliable service he wants. Your own jobber will meet all *your* piping needs with the same dependable service. Ask for ANACONDA Refrigeration Products. Look for the ANACONDA Trademark.

5325

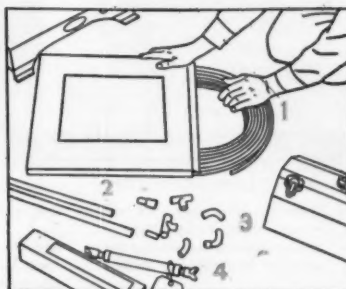
THE AMERICAN BRASS COMPANY, Waterbury 20, Conn.
In Canada: Anaconda American Brass Ltd., New Toronto, Ontario



Circle No. 15 on Reader Service Card

and AIR CONDITIONING • JANUARY, 1954

COMPLETE LINE OF
ANACONDA REFRIGERATION PRODUCTS

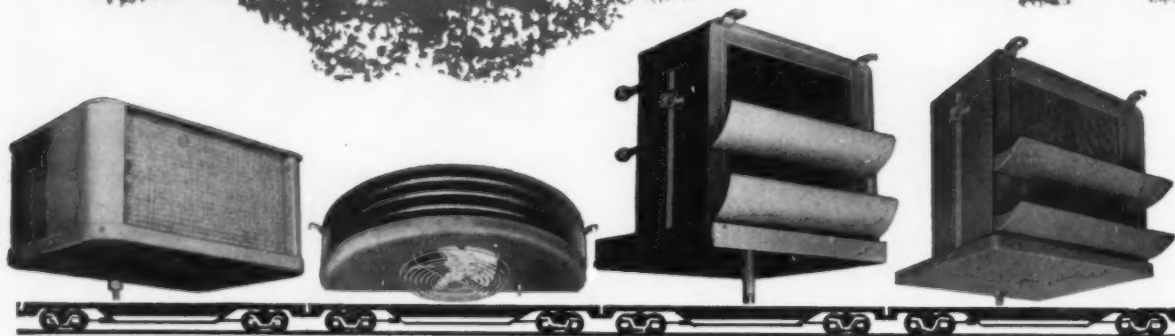


4 QUALITY PRODUCTS, EACH THE RESULT
OF MODERN MANUFACTURING METHODS

1. Copper tubes in 50-ft. coils.
2. Hard copper tubes in straight lengths.
3. Fittings (elbows, tees, couplings, unions, adapter and reduction combinations, etc.).
4. American Vibration Eliminators.

Go all the way with

McQuay



TWO-WAY UNIT COOLER

Three compact sizes of 80, 120, and 160 Btu per degree T.D., designed for the job where space is at a premium.

RADIAL UNIT COOLER

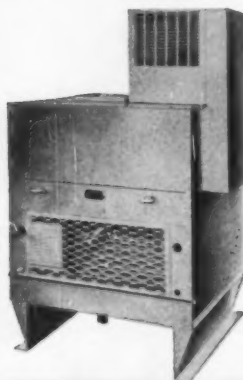
Seven sizes with capacity range from 200 to 870 Btu per degree T.D., styled for minimum height and depth to provide more head room.

HOT GAS DEFROST SYSTEM

Six sizes from 300 to 1600 Btu per degree T.D.—completely automatic defrosting with "Reverse Cycle" hot gas for low temperature applications using air cooled F-12 condensing units.

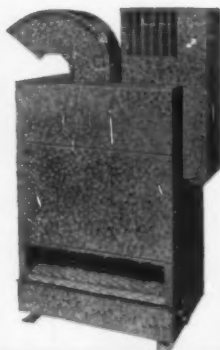
PACEMAKER UNIT COOLER

12 sizes from 114 to 2300 Btu per degree T.D.—general "low-side" applications in walk-in coolers, back bars, reach-in cabinets, etc.



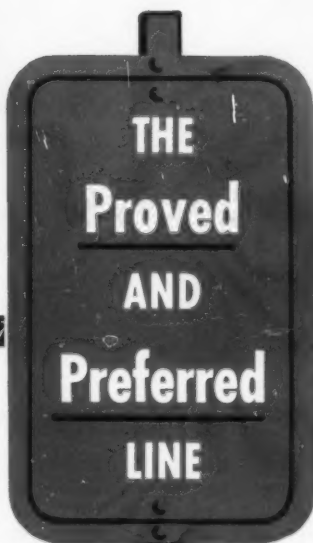
EVAPORATIVE CONDENSER

3 models using bare tube coils—for water conservation in areas where water supply and sewage facilities are limited.



COOLING TOWERS

4 sizes with nominal ratings of 3, 5, 7½ and 10 tons with specially designed deck surface for economical condenser water cooling and other similar applications.



"RH" AIR CONDITIONER

4 sizes, 2 to 10 ton models. During hot weather, filters outside air and cools it by either cold water or Freon coils. Steam or hot water coils provide warm filtered air for heating seasons. Wide applications for stores, shops, offices, restaurants, etc.

REFRIGERATION

AIR CONDITIONING

Circle No. 16 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

For Greater Profits and Happier Customer Relations in 1954

You can depend on McQuay's *Proved and Preferred Line* of refrigeration products to deliver more business and bigger profits for you in 1954. It's a complete line . . . the only line that offers famous Ripple-Fin construction, the exclusive feature that is your assurance of high efficiency and long life. Contact the McQuay representative in your area or McQuay Inc., 1643 Broadway St. N.E., Minneapolis 13, Minn.



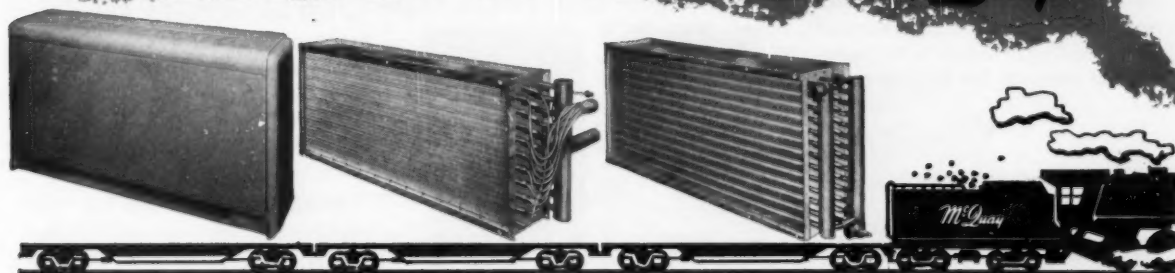
"HL" & "L" LOW TEMPERATURE UNIT

Type "L" in 6 sizes from 1200 to 9000 Btu per degree T.D.—for locker plants, meat freezing rooms, ice cream hardening rooms, etc. Type "HL" in 6 sizes from 1133 to 8666 Btu per degree T.D.—recommended for storage rooms above 35-degree F., banana rooms, meat rooms, produce rooms, etc.

ZEROPAK SPEED TUNNEL FREEZER

Capacity range from 1050 to 3000 Btu per degree T.D. in four sizes. The combination sharp freezer and low-side unit is suitable for all types of low temperature storage and sharp freezer applications.

You're on the right track with *McQuay*



SEASONMAKER, FLOOR TYPE

In three sizes, 200, 400, and 600 CFM, (ceiling type also available) with cooling capacities from 1/2 to 2 tons with water, 1/2 to 1 1/2 tons with Freon. For mounting under window or along wall.

DIRECT EXPANSION COIL

8 models of 4 and 6 row DX coils, from 2 to 10 tons in capacity. 4 row coils produce more desirable leaving air conditions; 6 row coils are available for applications which require smaller duct sizes (face areas).

WATER COOLING COILS

4, 6, and 8 row coils from 1.8 to 14.5 tons capacity for air conditioning systems with air duct distributions. A total of 12 models.

HEATING

McQuay INC.



and AIR CONDITIONING • JANUARY, 1954

ABOUT PEOPLE

Thomas E. Gravenstreter has been named manager of air dryer



sales for Bryant Heater Div., Affiliated Gas Equipment, Inc. He will direct all air dryer sales and promotional activities. Gravenstreter, formerly engaged in

custom air drying activities for the firm, will also head a new sales staff comprised of members from the previous custom sales force.

Byron E. James has been elected to the board of directors of McQuay, Inc. James rejoined McQuay as vice president in charge of engineering and research in July. He had formerly been associated with York Corp. as manager of equipment development and assistant chief engineer in charge of commercial engineering. James had previously been chief engineer and vice president in charge of engineering and research for McQuay.

Phil Powell has been appointed sales representative for the South-



western district of Wolverine Tube Div., Calumet & Hecla, Inc. Powell was formerly with Standard Brass Co., Houston, Texas, as a representative specializing in

condenser tube sales. He is a veteran of 15 year's experience in the brass industry. He will headquarter in the Houston district office.

Stanley L. Furber has been appointed by Minneapolis-Honeywell Regulator Co. as sales manager of the commercial building market section of the commercial division, and **George Langenberg**, who



S. L. Furber



G. Langenberg

headed the defense projects works in the Minneapolis office, has been transferred to the company's Chicago office as a group leader. Furber has been sales manager of modernization and zone controls since 1950 and will now supervise sales and training activities. Before taking the defense sales post two years ago Langenberg was city sales manager for heating controls in the firm's St. Louis branch.

Robert W. Lear has been appointed general marketing manager of the plumbing and radiator heating division and **Robert W. Williams** has been named successor to Lear as advertising and sales



R. W. Lear



R. W. Williams

promotion manager for American Radiator & Standard Sanitary Corp. In his new position, Lear will direct all staff sales activities for the division, including advertising, promotion, sales planning and market development. Lear began his association with American-Standard in 1947 as a member of the advertising and sales promotion department.

Philip H. Gauthier has been appointed personnel manager of Remington Corp. He will head a newly formed department and will personally supervise the recruiting and selection of plant and office employees engaged in the design, manufacture and sale of room air conditioners.

C. Jesse Popky has been appointed vice president in charge of



sales for Victory Metal Mfg. Corp. Since 1949, Popky has been national sales manager of the firm. Prior to his association with Victory Metal, he represented

General Electric Co.'s commercial refrigeration distributor in the Philadelphia area as sales engineer. Popky has been in the refrigeration field for over 30 years, starting with the Philadelphia Electric Co. where he was active in the sale of commercial refrigeration.

John R. Hamill has been appointed manager of the Kansas City district office of Worthington Corp. He will succeed **Paul J. Foley** who has been appointed general sales manager for Worthington's Plainfield, N. J., works' products.

William J. Thurston has been appointed factory sales engineer for



Delavan Mfg. Co. He will represent the firm in New York, New Jersey, eastern Pennsylvania and Delaware. He will work with both manu-

facturers and supply houses, promoting sale of Delavan compressor parts for commercial refrigeration. He was asso-



When he's **SOLD** but not **SIGNED** ...

Be ready with **COMMERCIAL CREDIT PLAN**
financing to sign him up

MOST of your prospects need their working capital and usual lines of credit for *current* operations. To make sure they buy *now* . . . and from **YOU** . . . include **COMMERCIAL CREDIT PLAN** financing in your recommendations. More than 300 offices to serve you nationally. When can we tell you our story? Phone our office in your city or write or wire **COMMERCIAL CREDIT CORP.**, 14 Light St., Baltimore 2, Maryland.

**COMMERCIAL CREDIT
CORPORATION**

A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over \$135,000,000 . . . offices in principal cities of the United States and Canada.



Day after day..
TIME ^{WILL} **SELL!**



ciated with Thurston Inc., a sales engineering organization, for six years.

D. L. Adkins has been named head of Bush Mfg. Co.'s quality control department. Prior to his present position, Adkins was a Bush representative in Washington, D.C., working with government defense agencies on applications and specification of refrigerating equipment.

Four appointments have been made by Trane Co., of which two are in the heat transfer sales department. These two appointments are **Ellsworth A. Brown, Jr.**, who has been named assistant to the manager of process heat transfer sales, and **Vernon R. Anderson**, who has been appointed assistant to the manager of aircraft equipment heat transfer. Other appointments were: **John G. Hamm**, named manager of the St. Louis sales office; and **Don Reed**, appointed export manager.

Wyot Segler has been appointed district sales representative for Koch Refrigerators in the southwestern territory, covering Texas and New Mexico. Segler has been in the commercial refrigeration field for approximately 20 years.

John F. Zubrod, formerly assistant sales manager of the commercial electric refrigeration division of Servel, Inc., has been appointed product manager of the division, and **J. N. Schnur**, formerly assistant to the sales manager becomes



J. F. Zubrod

assistant sales manager. Zubrod has been with Servel for 20 years, having joined the division as an applications engineer in 1933. Schnur started as an order clerk in the division in 1944.

Russell A. Johnson has been appointed divisional sales manager in charge of refrigeration for Houdaille-Hershey Corp. Prior to joining Houdaille-Hershey, he was assistant sales manager of Hoosier Cardinal Corp., Evansville, Ill. He has also worked for Frigidaire and Airtemp.

Joseph S. Topp has been appointed staff specialist in charge of residential air conditioning promotion for Airtemp Div. of Chrysler Corp. Joining Airtemp in 1947 as a field engineer, Topp most recently was executive engineer for the Washington, D. C. region. He will work with dealers and homebuilders in the Detroit, Chicago, St. Louis, Kansas City, Dallas, New Orleans and the west coast sales regions.



WHY WAIT HOURS?

THAWZONE
ACTS
FAST



When you encounter a moisture problem, you might as well clear it up as promptly as possible. Why wait for the moisture to be picked up?

Thawzone travels with the re'rigerant to every part of the system where moisture may be. The entire refrigerant charge is in contact with Thawzone after a minute or two of "on cycle".

CORROSION TEST

Here is another test that shows how Thawzone prevents corrosion. Both tubes contain 25cc of "Freon" 12, .025cc water, 4cc oil, and steel strips. Tube No. 3 also contains 1% Thawzone. Tube No. 27 contains 1% antifreeze instead of Thawzone. This unretouched photo shows how the metal protected by Thawzone remained free of corrosion.

Besides preventing corrosion by DESTROYING water, Thawzone neutralizes acids that promote corrosion.

THAWZONE®

**The Only Product That
Destroys Water...
and Goes to All of it**

1. Reaches all parts of the unit.
 2. Actually destroys moisture . . . not a mere antifreeze.
 3. A patented invention . . . cannot be copied.
 4. No pressure drop possible.
 5. Not subject to oil clogging.
 6. Neutralizes acids, helps prevent corrosion.
 7. Helps prevent copperplating.
 8. Prevents moisture trouble in new units, too.
 9. Costs less. Only about 8¢ per lb. of refrigerant treated.
 10. One product for all "Freon" and methyl units.
 11. Only ¼ oz. per lb. of refrigerant required.
- Practically every wholesaler carries Thawzone.
Highside Chemicals Co., Clifton, N. J.

Circle No. 18 on Reader Service Card

Robert J. Kershaw has been appointed manufacturer's representative in



Texas, Oklahoma, Mississippi Louisiana, and Arkansas for La Crosse Cooler Co. With headquarters in Dallas, Kershaw will represent the complete

La Crosse line of refrigeration equipment, ice cubers and a contemplated air conditioning unit. He is well known to many dealers and distributors in that area.

Four appointments have been announced by Wagner Electric Corp. **Harold S. Garrett** has been named assistant director of purchases and production planning; **Harold K. Kramer** has been appointed purchasing agent; **Truman L. King** has been named labor relations manager; and **R. A. Weiskopf** will succeed King as personnel relations manager.

D. B. Thompson has been named sales representative in the



Denver, Colo., area for Frick Co. Thompson has had twenty years' experience in ice making, cold storage, refrigeration and air conditioning work.

He will travel throughout the Rocky Mountain states. Thompson will be under the general direction of Van J. Sparks, manager of the Kansas City branch office.

Two appointments have been made in the staff of Santa Fe Tank & Tower Co. **Dr. Joseph Lichtenstein** has been named eastern district manager and **Jack Slough** has been appointed assistant chief engineer. Lichtenstein will act as liaison for the company's mid western

and eastern offices. Slough will represent the firm through branch offices across the country.

Krantz Keller has been elected president of Rich Plan Co., Ltd., Dallas, Tex., originator of the business of supplying home owners with both freezers and food. Until recently Keller was treasurer of Carrier Corp., which provides the food freezers used under the Rich plan.

Harold Weinberger has been appointed advertising manager of Reading Tube Corp. Weinberger will be responsible for the company's enlarged national and direct mail advertising program, sales promotion and public relation activities.

James E. Baskin, project engineer on the technical staff of Fiber Glass Div., Libbey-Owens-Ford Glass Co., has been named district sales manager of a new



NOW!

An Access Tee For Hermetic Units!

Yes, and a fool-proof tee at that! Superior's new access tee allows you to tap into a sealed unit where the charging port is stuck or is in a location where the port is extremely difficult to reach.



- ▶ Use for purging, charging, or attaching a gauge
- ▶ Use it repeatedly
- ▶ Fits all standard Hermetic Units
- ▶ Heavy forged brass body
- ▶ Resilient gasket for secondary seal
- ▶ 1/4", 3/8" and 1/2" SAE or solder connections
- ▶ Operated by standard Hermetic Kit Valve and 1/4" hex. adapter

Ask your wholesaler for Superior Access Tees!

Superior

valve and fittings co.

Pittsburgh 26, Pa.

Circle No. 19 on Reader Service Card



office to be established at Cincinnati. Baskin has had more than 15 years' experience in the fiber glass business with a broad background of work in the factory and technical side of product development.

Warden N. Hartman, Jr., formerly manager of the industrial insulation department of the building materials division of Armstrong Cork Co., has succeeded M. W. Cuskey as general credit manager of

the firm. Cuskey, with the company since 1915, recently retired.

L. Farnsworth has been appointed C. Schmidt Co.'s district sales manager for the Chicago territory, which consists of Illinois, Indiana and Iowa. For the past four years he has been sales engineer with W. J. Harbers Engineering Co. in Chicago. He will work with dealers and food merchants.

Michael T. Daly has been appointed manager of the chain-stores



division for Warren Co., Inc. He most recently served as accounts executive for food-chain accounts for Hussmann Refrigeration, Inc., a position which he held

since 1946. He first became associated with the refrigeration business through the Georgia Power Co.'s service division and later through their domestic refrigerator sales.

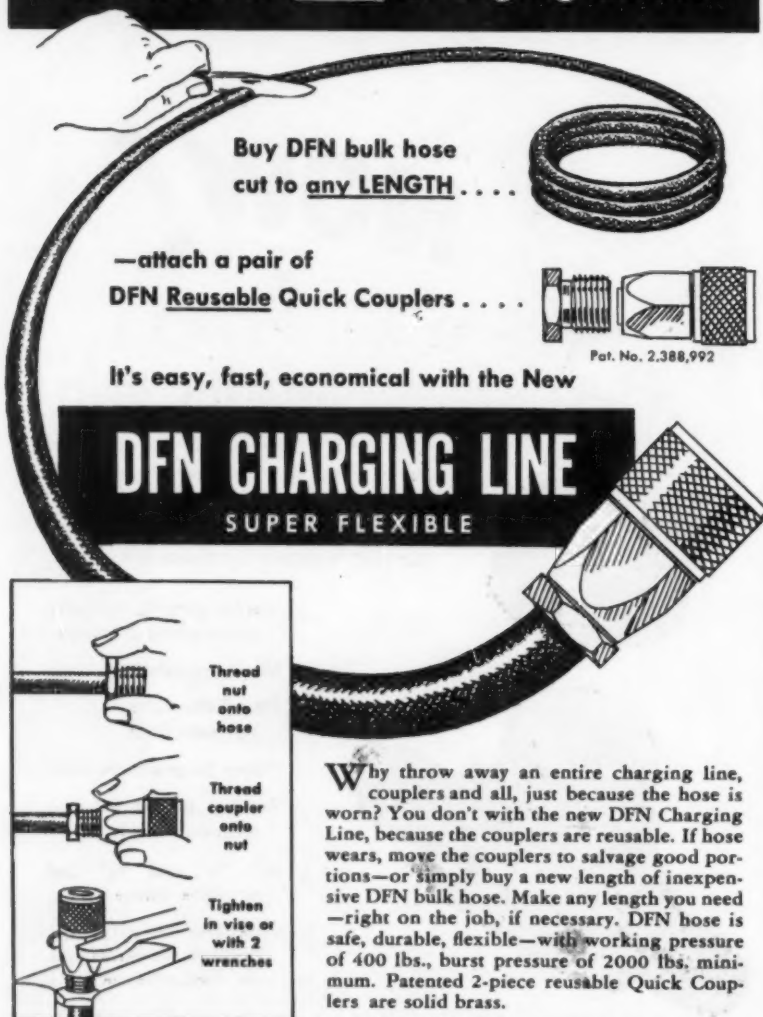
Lester E. Hadley, formerly district manager for Duro and Indestro Tools in the midwest territory, has been appointed assistant to R. E. Behlen, sales manager, automotive division of Duro Metal Products Co. **John Gracious**, with the firm for 25 years, succeeds J. P. Fagan who recently resigned as export manager.

William Few has been appointed chief engineer at Penn Controls, Inc. In his new job, Few will be responsible for Penn's expanded research and product development program. He comes to Penn from Clark Controller Co., where he was manager of the electronic and allied products division. He previously had been associated with General Electric Co.



Ralston B. Reid has been named manager of advertising and sales promotion for General Electric Co.'s apparatus sales division. He replaces **J. Stanford Smith** who has been named manager of general public relations services. **Kenneth G. Patrick**, who Smith succeeds, will now manage educational

Make Your Own Charging Lines!



Buy DFN bulk hose cut to any LENGTH

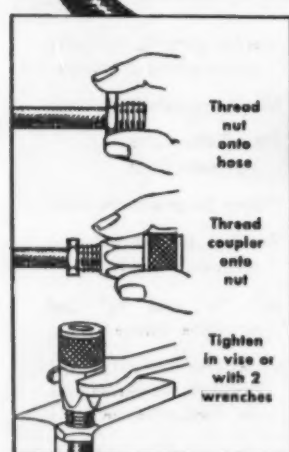
—attach a pair of DFN Reusable Quick Couplers

Pat. No. 2,388,992

It's easy, fast, economical with the New

DFN CHARGING LINE

SUPER FLEXIBLE



Thread nut onto hose

Thread coupler onto nut

Tighten in vise or with 2 wrenches

Why throw away an entire charging line, couplers and all, just because the hose is worn? You don't with the new DFN Charging Line, because the couplers are reusable. If hose wears, move the couplers to salvage good portions—or simply buy a new length of inexpensive DFN bulk hose. Make any length you need—right on the job, if necessary. DFN hose is safe, durable, flexible—with working pressure of 400 lbs., burst pressure of 2000 lbs. minimum. Patented 2-piece reusable Quick Couplers are solid brass.

Your wholesaler has DFN Charging Line. If not, write



The McIntire Company, Livingston, N. J.

DRIERS • FILTERS • STRAINERS

Circle No. 20 on Reader Service Card

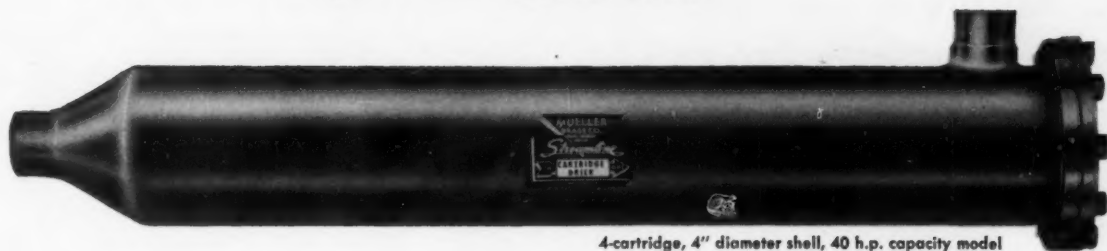
 it's a drier!  it's a strainer!

 it's a combination of both!

The sensational new versatile
MUELLER BRASS CO.

CARTRIDGE DRIER

in capacities from 1 h.p. to 40 h.p.



4-cartridge, 4" diameter shell, 40 h.p. capacity model



The new Mueller Brass Co. Angle Type Cartridge Drier is designed to meet every operating requirement. Versatility is the outstanding feature of this unit. To secure this versatility, special strainer cartridges were developed to the same dimensions as the standard drier cartridges. These drier and strainer cartridges are completely interchangeable size-for-size. In a system requiring extra strainer capacity, a strainer unit may be placed in the shell ahead of one or more drier cartridges. For added protection and still more filtering area, the new unit has a special "safety screen" at the outlet end.

Look at all these outstanding features:

- spun inlet end provides strong, leakproof construction . . . faster heating for soldering.
- flanged end is positively sealed by neoprene asbestos gasket, with minimum bolt torque.
- cartridges are non-directional . . . filter screen and dispersion plate at each end insures even distribution of high velocity refrigerant for maximum desiccant contact.
- the new silica gel PA 400 desiccant provides up to 98% more drying capacity.



MUELLER BRASS CO. PORT HURON 10, MICHIGAN

Circle No. 21 on Reader Service Card
and **AIR CONDITIONING** • **JANUARY, 1954**

117-R

relations services in G-E's public relations service division.

Frank Christenson of Refractory & Insulation Corp., was recently re-elected president and chairman of the board of the Industrial Mineral Fiber Institute, Inc. As president during the last year, Christenson has guided the association representing 16 manufacturers of industrial mineral fiber products in the U.S., Canada and abroad.

Albert O. Woolsey has been selected to head the sales of Techniflex Corp.'s line of air conditioning and refrigeration parts. He has had many years of experience in the air conditioning, heating, and refrigeration field.

John D. Meyer has been appointed sales manager of Trion Inc.'s appliance division. He will supervise the sale of packaged electronic air cleaners for the home.

Ernest Nuber has been appointed sales manager, instrument division, of Bristol Co. Nuber joined the Bristol sales engineering organization in 1929. He was made Pacific Coast manager in 1934 and later served for several years as export manager. In 1948 he was promoted to the position of manager, application engineering department.



Henry P. Kelly has been appointed assistant chief air conditioning engineer for the Fresh'nd-Aire Co. Kelly will do research and creative development work on Fresh'nd-Aire air conditioners and air treatment appliances. Prior to his association with Fresh'nd-Aire, Kelly was a supervisor field service engineer with the White-Rodgers Electric Co.

E. D. Dickson has been named to head Chrysler Airtemp's new Florida sales region. His territory will include southern Georgia and all of Florida, except the Pensacola area. Dickson has been associated with Airtemp since 1940. He has served as supervisor of planning, staff specialist, and was recently manager of the parts and order department.



F. A. Rittle and **Ben Prather** have recently joined Chase Supply Co., Chicago refrigeration and air conditioning parts wholesaler. Rittle, who formerly was president of Tempco Supply Co., will co-manage Chase Supply's north side branch. Prather, formerly a sales engineer for Bush Mfg. Co., will handle a sales area for Chase.

B.A.C. EVAPORATIVE CONDENSERS



**WORLD'S
WIDEST RANGE—**

Sizes up to 260 T.R. in Single, Factory-Assembled Units

Also full line of B.A.C. Cooling Towers

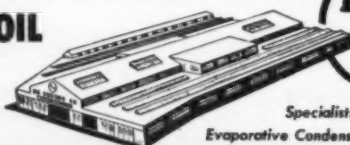


WRITE FOR FREE BOOK:

"Evaporative Condenser Installation & Operation Manual and Maintenance Manual"

**BALTIMORE AIRCOIL
COMPANY, INC.**

2615 Mathews Street
Baltimore 18, Md.



Specialists in
Evaporative Condensers Since 1938

Circle No. 22 on Reader Service Card

no matter
how

Large

or **SMALL** the application

there's a **SPORLAN**
Peak Performance
Solenoid Valve
to fit your needs!

Nothing can touch the
Peak Performance of
SPORLAN SOLENOID VALVES...

for Peak Performance is Wound
Right Into The Sporlan Solenoid Coil..
then *Permanently Sealed In!*

Sporlan solenoid coils are layer wound (not random wound) and interwoven with layers of cotton thread. This construction prohibits build-up of damaging electrical pressure across the turns of wire, thus minimizing possibilities of coil burnouts. After the coils are wound, they are twice dipped in high temperature insulating and water repellent varnish to thoroughly impregnate the cotton thread insulation, and are baked after each coating.

As a final precaution, the coils are then dipped in a protective sealer, and again baked to prevent any moisture infiltration.

SPORLAN Type 171 Solenoid Pilot Control offers the latest developments in the field of Pilot Controls, which Sporlan has pioneered for many years. It is made in *one size only* and used in place of extra large Solenoid Valves on F-12, and F-22. It costs less, is more economical to install, and assures positive shut-off of the liquid line.

★ **Type 12**
now available with
MANUAL LIFT STEM
in Pipe-Sweat
and Flare Connections

Write for
BULLETINS 30-10
and 30-70
Today!

SPORLAN VALVE COMPANY



7525 SUSSEX AVE. ST. LOUIS 17, MO.

EXPORT DEPARTMENT

89 BROAD STREET

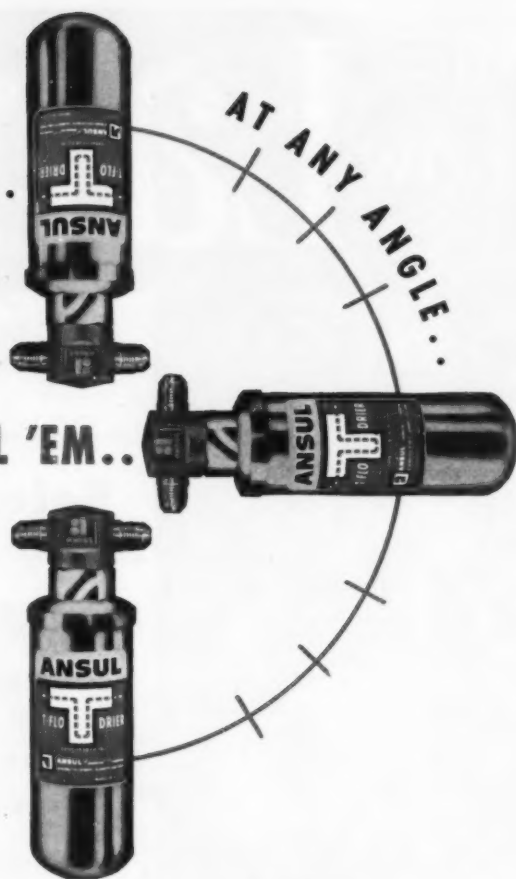
NEW YORK 4, N. Y.

Circle No. 23 on Reader Service Card

and AIR CONDITIONING • JANUARY, 1954

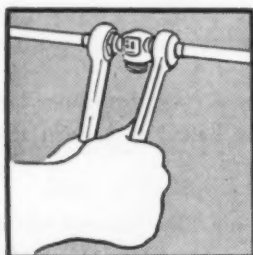
VERTICAL .. HORIZONTAL ..

ANY WAY YOU INSTALL 'EM..

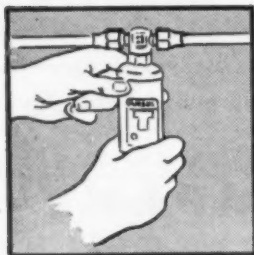


ANSUL T-FLO DRIERS

provide **GREATER CAPACITY, HIGHER EFFICIENCY,
FASTER PICK-UP**



Easy to install



Easier to replace

You can easily install Ansul T-FLO Driers in tight spots. They work efficiently in any position of installation. And, of course, replacement presents no problem since the fitting stays in the line.

Uniformly sized beads of *Andrite*, Ansul's new deep-drying desiccant, contribute greatly to the versatility of T-FLO Driers. The Desiccant cannot channel. And regardless of installation position of the drier, *Andrite* retains its unexcelled ability to remove harmful moisture and acids.

*Ansul T-FLO Driers are sold through
Refrigeration Wholesalers exclusively.*



ANSUL
Chemical Company

REFRIGERATION DIVISION • MARINETTE, WISCONSIN

MANUFACTURERS OF REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE CHEMICALS, LIQUEFIED GASES AND FIRE EXTINGUISHING EQUIPMENT



HERE'S THE
simplest joint ever made

FOR REFRIGERATION LINES

Chase[®] Copper Fittings
soldered to Chase
Copper Refrigeration Tube...what could
be simpler! And what could be stronger!
Why, $\frac{1}{2}$ " Chase Hard Temper Copper
Tube and Solder-Joint Fittings have
been subjected to a tensile pull of 3,800
lbs. and an internal hydrostatic pressure
of over 5,000 lbs. per square inch! You
can't beat that for leak-proof, pressure-
tight connections.

Write today for Free Illustrated Book "Chase
Copper Refrigeration Tube for Refrigeration and
Air-conditioning Work."



Chase  **BRASS & COPPER**

WATERBURY 26, CONNECTICUT - SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Denver†	Kansas City, Mo.	Newark	Pittsburgh	San Francisco
Atlanta	Cincinnati	Detroit	Los Angeles	New Orleans	Providence	Seattle
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Boston	Dallas	Indianapolis	Minneapolis	Philadelphia	St. Louis	(Sales office only)

Circle No. 25 on Reader Service Card

and AIR CONDITIONING • JANUARY, 1954

**WHERE DIRT
AND RUST**

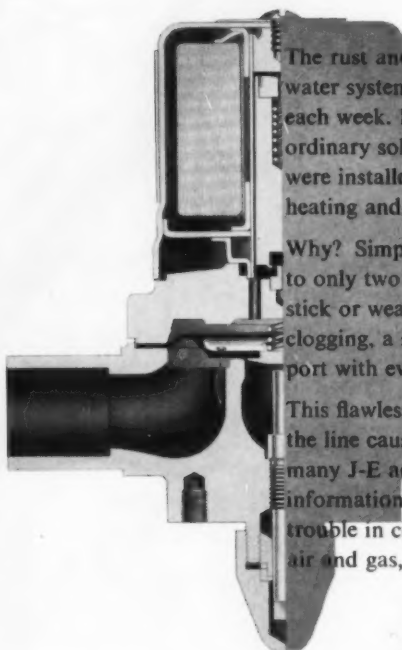


SOLENOIDS

STAY CLEAN AND SMOOTH-OPERATING



... at the Waterman Medical Building • St. Louis, Missouri



The rust and dirt in this heating and cooling circulating water system made it necessary to clean and oil the solenoids each week. Even with this expensive care, two sets of 11 ordinary solenoids failed. Then J-E *advanced design* solenoids were installed. They have operated perfectly through entire heating and cooling seasons *without a single servicing*.

Why? Simply because the advanced J-E design is simplified to only two moving parts. All sliding surfaces that might stick or wear have been eliminated ... and to prevent clogging, a special cleaning wire moves through the bleed port with every operation of the valve.

This flawless, dependable operation where foreign matter in the line causes trouble with other valves, is just one of the many J-E advanced design solenoid features. For complete information on the many ways they can save you time and trouble in controlling Freon, brine, ammonia, steam, water, air and gas, call your jobber, or write:

**All J-E Solenoids are
unconditionally guaranteed
for 18 months**

- **TIGHT SEATING**—no bubble tolerance.
- **SIMPLICITY**—only two moving parts.
- **LONG LIFE**—cool coils.
- **DURABILITY**—all corrosion-resistant material.
- **OPENING PRESSURE DIFFERENTIAL**—higher than most others on the market.



SOLENOIDS THAT SURPASS THEIR SPECIFICATIONS

JACKES-EVANS MANUFACTURING COMPANY

Controls Division: 4427 Geraldine Avenue • St. Louis 15, Missouri

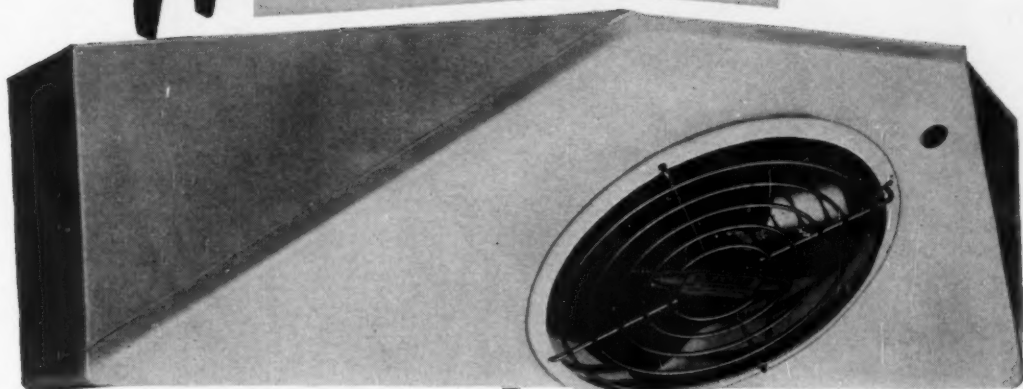
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JANUARY, 1954 • COMMERCIAL REFRIGERATION

**TAKES NO MORE
HEIGHT THAN
A MILK BOTTLE**

Wedge

KRAMER



1030 TO 5540
BTU/HR.

The Wedge is no taller than a quart
of milk and due to its wedge shape
it gives full usage of all shelf space.

IDEAL FOR REACH-IN BOXES

WRITE FOR BULLETIN W237

KRAMER TRENTON CO. • Trenton 5, N.J.

Circle No. 27 on Reader Service Card
and AIR CONDITIONING • JANUARY, 1954

*A **quick** source of reliable*

Air Conditioning and Refrigeration Pumps

For circulating water through cooling towers and evaporative coolers, Marlow offers a wide range of exceptionally dependable pumps designed specifically for this service. Although ruggedly constructed, these pumps are compact and easily installed in cramped quarters, in any position, at any angle. Over a quarter century's specialized pump experience insures peak performance and longest service life. Marlow

Pumps are quickly available in quantity from stocks placed at strategic locations across the country. Ask for complete details about these sturdy, compact, and highly efficient pumps.



World's largest manufacturer of self-priming centrifugal, diaphragm and plunger pumps . . .

Marlow Pumps

Ridgewood, New Jersey • Branch Plant — De Queen, Arkansas

Other factories in France and England. Distributors and dealers everywhere.

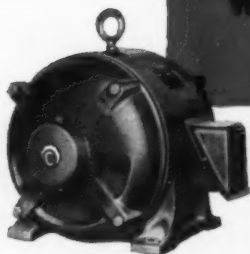
Two Century motors installed on an air conditioning and heating system serving a 10-story office building.

THE QUIET POWER

OF
Century

MOTORS

WILL HELP KEEP YOUR CUSTOMERS HAPPY



To assure quiet starting and efficient, dependable operation manufacturers do two things. They engineer their equipment skillfully *and* they choose motors carefully to bring out the best performance in their equipment.

Many leading manufacturers of heating, ventilating and air conditioning equipment depend on Century motors. They have found that Century's wide range of motor sizes and types helps them select motors that are exactly right for every job.

Century motor-power on the equipment you install is your first step toward complete customer satisfaction. Remember, Century's nationwide network of Branch Offices and Authorized Distributors is always at your service to help you with your motor problems.

400 TO 1/8 HORSEPOWER



CENTURY ELECTRIC COMPANY

1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

Circle No. 29 on Reader Service Card

and AIR CONDITIONING • JANUARY, 1954


**SEE YOUR
WHOLESALE**

ask for the PENN
Complete Line of


COOLING CONTROLS

Here's what happens when you use Penn cooling controls. You'll have the *right* control to fit your needs exactly . . . costly service call-backs stop . . . and customers "talk you up" because of efficient on-the-job performance and long-life dependability of Penn controls. Put them all together and they spell out M-O-R-E P-R-O-F-I-T for you!


Don't settle for less . . . use Penn every time on every cooling job. **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.




Series 246 Water Valves $\frac{3}{4}$ " to $2\frac{1}{4}$ " in threaded and flanged styles for use with oil refrigerants.



Series 325 Time-Pressure Defroster automatically varies defrost time for any load condition . . . avoids shut-down time.

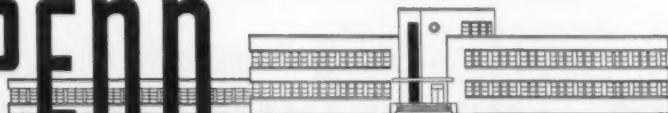


Series 275 Oil Protection Control for use on all pressure-lubricated refrigeration compressors.



Series 270 temperature and pressure controls in single or double-pole models have direct-reading scale.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES
Circle No. 30 on Reader Service Card



AIR CONDITIONING HAS A TRULY BRIGHT FUTURE according to the customary year-end predictions by industry executives as to what lies ahead in 1954 and the years beyond. While the accuracy of these predictions can't be guaranteed, they do represent the considered opinions of people who should be in a position to know what they are talking about. We hope they will give you some idea of what to expect in *your* business in the months and years to come.

REGARDLESS OF ANY GENERAL BUSINESS SETBACK, the air conditioning industry appears headed for expansion over the next few years at least, according to Wesley J. Peoples, president of United States Air Conditioning Corp. "The tremendous demand for air conditioning of all kinds," Peoples says, "will require years of the industry's peak production, and considerable expansion of its facilities." Peoples stresses the fact that this expansion, while possibly most spectacular to the public in the window unit, is really most promising for the industry in the broader line of "true air conditioning" for year-around applications in both residences and industrial establishments.

THE \$5 BILLION MARK may be reached in 1963 by the whole air conditioning industry, both home and commercial, if the expectations of the American Institute of Management hold true. Such optimistic prognostications are attracting great interest to the field. Already some 68 firms are making and distributing air conditioners. Stewart E. Lauer, president of York Corp., expects this figure to swell to 90 by the end of this year.

80,000 HEAT PUMPS WILL BE SOLD annually by the air conditioning industry within 10 years. That is the prediction made by Mark Mooney, vice president of Typhoon Air Conditioning Co., Inc. "This goal can be reached," Mooney asserts, "if the industry continues its rapid progress toward lower prices and compact, smart-appearing, less complicated heat pumps, which can be easily installed, readily serviced, and which will give dependable operation."

ROOM AIR CONDITIONER SALES WILL SOAR to 1,500,000 units in 1954, in the opinion of Bernard A. Mitchell, president of Mitchell Mfg. Co. In making this forecast, Mitchell predicted that next year's sales will almost equal those of the entire eight years since the room air conditioner industry went into volume production after World War 2. This statement was based on a statistical study compiled by his company, using industry and utility tabulations. The study shows, Mitchell said, that not only are room air conditioners the fastest growing item in the home appliance field, but that in terms of potential sales market no other major home appliance is even close. Only 3.4% of this potential has been reached so far, the study indicates.

A \$750 MILLION INDUSTRY IN THE MAKING is the way Ned Cole, chairman of the air conditioning committee of the National Association of Home Builders, describes the residential air conditioning field. What's more, he predicts that this figure may be reached within the next three or four years, ballooning rapidly from its present \$75 million status. But Cole warns that if the industry is to score this ten-fold advance it must consolidate itself and present a solid front so that government agencies can be provided the information and assurance they must have in order to give the air conditioning field the support in financing of installations that it needs and deserves.



FOUR LIFELESS BODIES huddled in the bottom of this unused reach-in refrigerator serve as mute testimony to the peril of leaving such units around without first removing either doors or latches. The four boys, ranging in age from 5 to 7, found their final hiding place in a warehouse building at McGuire Hospital, Richmond, Va., in which this refrigerator was stored.

More than 28 children lost their lives in abandoned refrigerators last year

*(As an industry service, reprints of this article are available
in limited quantities without charge to readers of this magazine.)*

These could have been your kids!

SHOCKING, isn't it? Just think about it for a moment. Any one of the more than 28 children who lost their lives last year through being trapped in abandoned refrigerators could have been yours!

What's more, last year's figure is simply the continuation of a grim trend which has been steadily on the increase ever since the first records of this type were compiled. In 1946, the year in which this macabre tally was started, the death of only 2 children was reported. In 1947, it was 3, and from then on the disgraceful total started to climb — 8 deaths in 1948, 9 in 1949, 7 in 1950, 12 in 1951, 14 in 1952, 28 during the first 10 months of 1953.

What does this add up to? A ghastly total of more than 83 innocent boys and girls ranging from 2 to 12 years of age who have died needlessly during the past 8 years, simply as the result of gross negligence on the part of people who are old enough to know better!

We can't hope to curb the eternal curiosity and playfulness of young children which leads them to investigate such irresistible hiding places as abandoned refrigerators. But we can and should educate adults to the terrible dangers of leaving unused refrigerators accessible to children without first rendering them

harmless by removing either the doors or the hardware, or both.

A number of steps are being taken in this direction. Representatives of eight national associations met recently with the safety committee of the Air-Conditioning and Refrigeration Institute to plan an integrated campaign to eliminate this menace. Legislation has been enacted or introduced in a number of localities to make it a misdemeanor to abandon any type of refrigerator without first making it child-proof.

The Refrigeration Service Engineers Society has drafted a model law of this type, and through its local chapters is urging the adoption of this law by local and state governments. This society also has renewed its pledge that all members would remove doors or hardware from any such units for anyone without charge.

But in the final analysis the continuation of this crusade filters down to the individual level, and there's nobody in any community who is in a better position to inspire and direct such a movement than the refrigeration distributor, dealer, contractor, or service organization. Yes, it's up to YOU to do everything you can to save YOUR children (as well as many others) from such a needless and untimely death.

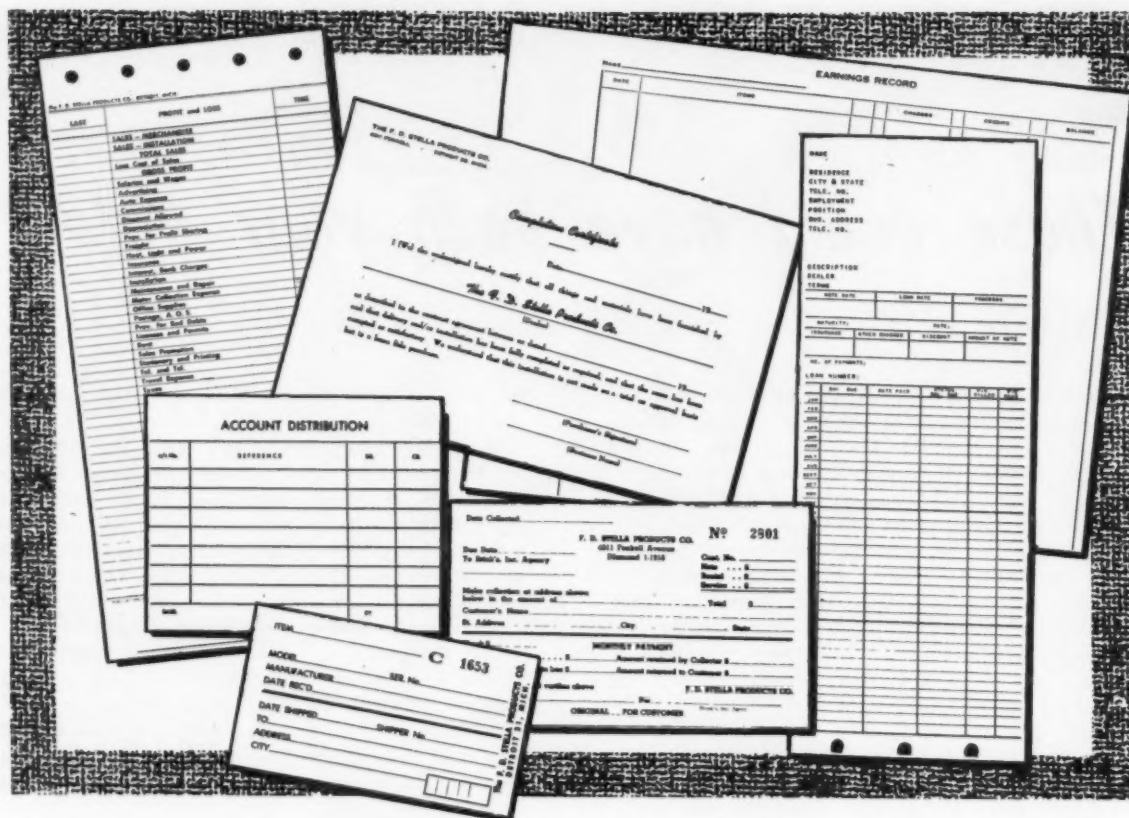
Two Steps in the Right Direction . . .



CRUSHING DEATHTRAPS with a bulldozer was the climax of a clean-up campaign sponsored by the Citizens for Safety organization in St. Petersburg, Fla. More than 100 old abandoned refrigerators were hauled to the city dump by volunteer crews.



COLLECTING DOORS from old refrigerator cabinets was the method used by a Sacramento, Calif., super market which offered 1000 free Thanksgiving turkeys to citizens in return. The deal was cancelled after more than 4000 turkeys were given away.



SWAMPED BY PAPER WORK? Through the development and application of "custom tailored" business forms like those shown above, one Detroit dealership has managed to free its executives from the shackles of office routine in order to provide them . . .

... MORE TIME FOR SALES

THE primary function of any commercial refrigeration dealership is to sell commercial refrigeration equipment. Anything which helps accomplish that purpose is a valuable sales tool for the dealer.

By the same token, however, anything which happens the firm's merchandising efforts is a distinct liability, and materially minimizes that dealer's chance for success. And all too often that's just what the routine of office paper work does.

A certain amount of paper work is essential to the operation of a commercial refrigeration dealership, of course, just as it is in any business office. A lot of it, some-

times. But every form and every phase of this paper work should have just one purpose — that of freeing the management of the dealership for more direct sales effort.

This is the sound operating policy followed by the F. D. Stella Products Co., Detroit, Mich. The Stella firm probably uses as many office forms as any other dealership — perhaps even more. These forms enable the company's executives to keep close tab on every phase of the company's operations.

The big difference is that each of these forms has been specially designed by Frank D. Stella and his

brother, A. J. Stella, president and vice president of the organization, with just one thought in mind — that of speeding and simplifying office routine so that the firm's management would need to spend less time on such details and thus could spend more time on constructive sales effort.

Like many other busy executives of a commercial refrigeration dealership, the Stellas used to find their desks continually cluttered with stacks of detailed paper work. In fact, it finally reached the point at which it was mighty easy for them to become tied to their desks day in and day out, doing nothing

but working out from under this load of organizational detail.

They quickly realized, however, that their primary value to the organization was in actively selling merchandise and in directing the firm's merchandising activities. So, in order to free themselves for these duties, they began a systematic step-by-step revision of the company's paper work routine.

Forms Are Revised

Little by little they improved their office forms and procedures until instead of handling every step of the detail, they would see only carefully prepared summaries of the firm's activities. This meant that they were still in a position to personally supervise and direct every phase of the organization's efforts, but were no longer burdened down by the mass of detail which had previously hampered their own selling efforts.

So contagious has this practice become that now it is not uncommon for one of the company's employees to come up with an improved form, based on his own experience, for handling some phase of the firm's operations.

Ratio Is Reversed

"When we first started this business," explains Frank Stella, "my brother and I spent virtually 100% of our time on direct sales activities. What paper work was required we sandwiched in on an extra-hours basis.

"Then, as the organization grew, we found ourselves becoming swamped with this paper work until it required at least 75% of our time, leaving only 25% for sales work. Through the application of these specially devised business forms, we have been able to reverse that percentage so that now we need spend no more than 25% of our time on office detail and can devote 75% of it to selling."

These special forms which have been developed and applied by the Stella organization, the ways in which they are used, and the purposes they serve, will be the subject of a series of articles in future issues of **COMMERCIAL REFRIGERATION AND CONDITIONING**.



TIME AND MONEY ARE SAVED for a Philadelphia dealer by this radio-equipped service van which can spot service men at emergency calls within a matter of minutes in the downtown area. Driver Leo Smith is at the radio phone, while serviceman Herbert Hoffman stands alongside. At left are Ralph Link, Airtemp district manager; Harry Young, regional sales manager; and P. A. Delaney, vice president and general manager of Fretz Service. At far right is Clyde Wonderly, Airtemp.

Routing by Radio

MOBILE flexibility and two-way radio are helping the S. S. Fretz Co. lick the problem of getting service men where and when they are needed in traffic-choked downtown Philadelphia.

With an average of 2000 to 2500 service calls a month — the majority are made on service contracts — a staggering amount of time formerly lost in parking has been recovered by this aggressive Chrysler Airtemp dealer.

In the mornings, the Fretz radio truck drops three to five servicemen off on scheduled downtown Philadelphia calls. After completing the first trip, the truck is driven to a side area where it awaits orders to pick up the servicemen after calls are completed and drop them off at other locations.

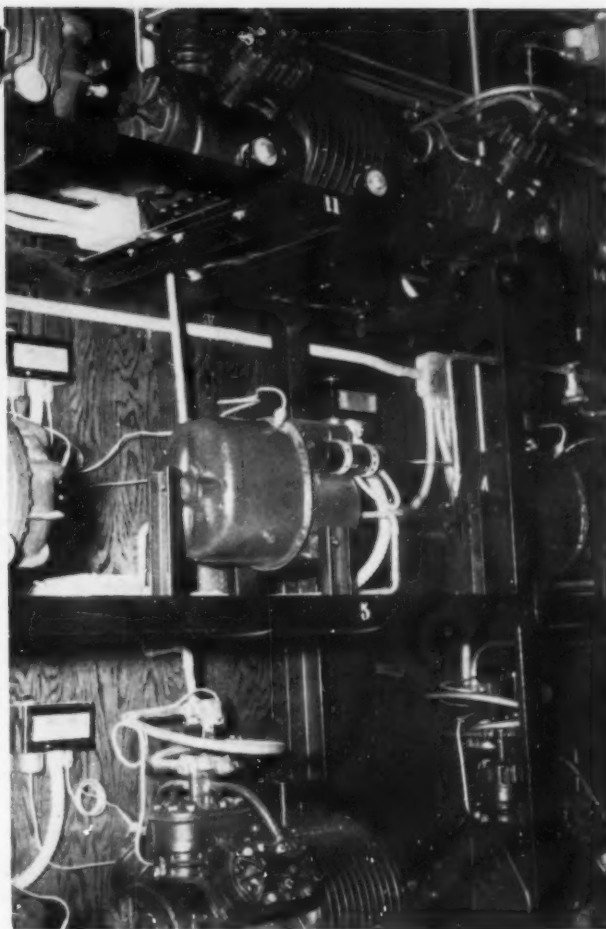
Since March the van has saved two to three dollars a day per serviceman, as otherwise each of these men would have to use separate trucks and pay parking fees. The average daily number of service calls per man has been increased from five to eight.

The emergency van is completely equipped with filters, reagent, and parts for "packaged" and radial air conditioners. While awaiting dispatched orders, the truck delivers filters and spare parts to near-downtown locations where parking is not a problem.

Fretz Service is a separate division of the S. S. Fretz Co., handling all service, delivery and shop repair. The division employs 22 servicemen, seven shop and parts men, five dispatchers and office and warehouse employees. The Fretz fleet numbers 16 trucks.

According to W. J. Heggie, president of the Fretz organization, the radio-equipped van is one of the best goodwill builders and one of the most useful innovations the company has ever developed. "Now it's only a matter of a few minutes," Heggie points out, "from the time a request for service is phoned in until the serviceman is on the job in the downtown area."

CRAMMING 10 hermetic condensing units plus a multiple-circuit evaporative condenser into an 8 x 4-ft. machinery room was the problem in this food market installation. Stacking the condensing units on this three-tiered rack provided part of the answer.



A "Shoe Horn" Installation

HOW to get the maximum amount of equipment into a minimum amount of space is a problem faced by commercial refrigeration dealers in many of their installations, for to many of their customers space means money.

A classic example of such space saving — and money saving — techniques is the installation made by E. W. Smith Refrigeration Co. of Palo Alto, Calif., in the Co-Op Market of that city. When the management of this market established specifications for their store they insisted on a machinery room within the building, but for obvious

reasons they were interested in keeping the space allotted for this purpose down to the smallest possible amount.

It's difficult to understand how, without using a shoe horn, the Smith organization could cram 10 Servel hermetic condensing units plus a multiple-circuit Recold evaporative condenser into a machinery room measuring only 8 ft. long by 4 ft. wide — but that's exactly what was done.

Believe it or not, it wasn't done with the aid of mirrors. Instead, it was done with the aid of a stacking arrangement which made it

possible to install all 10 condensing units, varying in size from $\frac{1}{3}$ to 2 hp, into an unusually small amount of space.

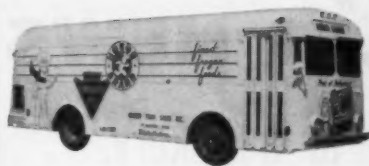
The 10 units are mounted on a specially constructed frame of welded angle iron. This frame consists of three tiers, with three units being mounted on the bottom row, four in the middle and three more on the top row.

The refrigerating machinery in this installation consists of five 2-hp condensing units, and three 1-hp units, plus one $\frac{3}{4}$ -hp and one $\frac{1}{3}$ -hp machine. The evaporative condenser

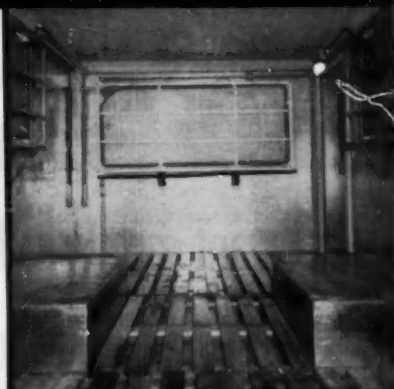
Continued on page 45



REFRIGERATES AS IT GOES—This large Eskimo Pie Semi-Trailer is refrigerated to below freezing temperatures automatically through use of a Kold-Trux "Mobilmatic" Unit. Temperatures are thermostatically controlled.



BUS CONVERTED INTO REEFER—Frozen Food Sales Company converted this large passenger bus into a refrigerated delivery truck for a wholesale frozen food route. It is refrigerated with 5 Kold-Hold "Hold-Over" Truck Plates.



CAMBRIA PACKING COMPANY has found that Kold-Hold equipment is "100% effective, is simple to operate, and is not subject to failures or breakdowns." Kold-Hold Plates are used in 6 trucks, each traveling 7 hours a day.

regardless of your problem

KOLD-HOLD® TRUCK REFRIGERATION

has the "right combination!"



PREVIOUS DAY LOADING of milk has been made possible at Southern Dairies through use of Hold-Over Plates to keep truck bodies clean and cool. Plates are used both with mounted compressors and make-and-break assemblies.

Just as it takes the right combination to open a safe, it also takes the right combination of equipment to get the top dividends from truck refrigeration. That's why Kold-Hold gives you your choice of several different truck refrigeration combinations. In this way they can provide a method of refrigeration that is just right for your particular needs. They will help you select equipment from such highsides as the Kold-Trux "Mobilmatic" Unit, a mounted compressor, or make-and-break assemblies and from such lowsides as Kold-Hold "Hold-Over" Plates, Thin Plates, Serpentine Quick-Action Plates, or Blowers. Send the details of your problems to Kold-Hold today.

AN ENGINEERED ANSWER

Because there are so many ways to refrigerate a truck, it is important to get an engineered installation that is just right for your special requirements. Engineered installations are a free service of Kold-Hold. Write today for complete details.

Look to Kold-Hold for the latest developments in Truck Refrigeration

KOLD-HOLD®

division

TRANTRER MANUFACTURING, inc., 503 E. Hazel St., Lansing 4, Michigan

Circle No. 31 on Reader Service Card

and AIR CONDITIONING • JANUARY, 1954

COMMERCIAL *Refrigerator* SALES NEWS

"Important as Bread to a Bakery,"

Dealers Say of Planning Service

A SPIRITED panel discussion on food store planning, installation and service, and refrigeration engineering provided one of the most stimulating highlights of the 7th annual convention of the National Commercial Refrigeration Sales Association.

Numerous speakers from the floor vied with the four panel members in presenting their opinions on and experiences with all phases of these three general subjects. Factors covered under food store planning included design and layout, shelving and gondolas, special fixtures, and color schemes. The installation and service discussion centered on such matters as servicing problems, proper installation, and cartage, delivery and erection. Both applied refrigeration and air conditioning were covered in discussion of refrigeration engineering.

Members of the panel, which was moderated by president Irving W. Shell, are identified in the photographs which appear at the bottom of this page.

A number of different methods of handling the store layout problem

were outlined by members, both from the panel and from the floor, but it was generally agreed that a store planning service is, as one dealer so aptly put it, "as much a part of our business as bread in a bakery". The importance of having a full-time engineer as a layout man also was stressed.

One dealer suggested that, to avoid "piracy" of completed store layouts by prospects who do not buy, his firm never submits anything but a rough sketch to the prospect until the order is signed. Then a 2½% reserve called a contingency is collected to cover preparation of the detailed layout and engineering supervision.

An Iowa dealer made the point that there are two types of drawings—one for sales purposes and one for engineering purposes. An Ohio dealer backed this up with the point that he always makes his salesmen prepare the preliminary drawings, on the theory that if the salesman has to put a little extra effort into his initial contact with the prospect he will work just that much harder to close the sale.

Another distributor, following along this same pattern, has each of his salesmen carry a drawing board right with him in his car. He is then in position to impress the prospect by making a preliminary sketch right on the spot. A \$100 advance is required prior to submission of the finished layout, with the understanding that this advance will be applied against the cost of the job if he buys, or refunded upon return of the layout if he doesn't.

A dealer from Washington countered with the cogent conclusion that any firm's practice in this regard must of necessity be strongly influenced by the actions of his competition. "You can't get away with charging \$100 for a drawing if your competitors don't," he declared.

What About Shelving?

A dealer from New Jersey concluded this phase of the discussion with the observation that the real answer to this problem lies in having salesmen who really know their business—and that of their customers, as well. "A competitor can steal your plans and layouts," he pointed out, "but he can't steal the ideas implanted in the mind of the customer by your salesman."

Pros and cons of the use of diagonal gondolas in food market layouts were discussed rather thoroughly, with the consensus seeming to be that in certain applications they tend to make shopping more interesting for customers and provide better use of end displays, despite the fact that they are somewhat wasteful of floor space. It was agreed that diagonal gondolas were no cure-all for display problems.



LISTENING INTENTLY as a member of the association voices a question from the floor are members of the panel which led the discussion during one of the sessions at the 7th annual convention of NCRSA. Irving W. Shell (right), 1953 president, moderated the discussion. Members of the panel (from left) were: Sherman

Bushnell, Refrigeration Engineering Co., Seattle, Wash.; Lee Hayes, Detroit Refrigerator Mfg. Co., Detroit, Mich.; George Schoenbacher, Red-E-Cold Refrigerator Co., Chicago, Ill.; and Milton Katz, Ever-Ready Refrigeration Co., Trenton, N. J. Panel members were kept busy answering a barrage of such questions.

Opinions on the desirable height of gondolas was sharply divided, with some dealers voicing the opinion that in order to satisfy some customers' desires for added display space it was necessary to design gondolas running as high as 84 inches, while a West Coast distributor contended that in his trading area you couldn't sell a gondola that a person of average height couldn't see over. They want to see from wall to wall, he said.

It was generally agreed that adjustable shelving is a must in modern gondola design, but many

BEING "Phoney" pays off in a big way for a Detroit dealer who has great success selling ice makers with a telephone book.

This enterprising business man clips from the yellow pages of his telephone book names of anyone who might use ice in any way. He then pastes the names on separate cards for filing and reference convenience.

His pitch is to phone each name and explain that he is making a survey on ice consumption. He then requests figures on daily consumption, whether the consumer uses crushed ice or cubes, and the cost of 100 lbs.

If an ice maker can save the consumer money, the dealer makes an appointment for an interview, and . . . you guess the rest.

dealers expressed the opinion that many food merchants have to be educated to the idea of taking full advantage of the flexibility offered by the adjustable arrangement.

As always, the question of the proper location for the produce department in a food store was the subject of considerable discussion, with one Ohio distributor suggesting that being a high profit item it should be placed first in the line of travel in order to attract early attention, and a manufacturer's representative venturing the opinion that it should be located as near as possible to the bulk produce cooler in order to cut down on labor time and cost.

Another Ohio dealer summed up this discussion, however, by pointing out that in the final analysis there is no single answer to this question. "Why debate it?" he asked. "In the end, you'll just wind up by putting where the market owner wants it, anyway. And if

you don't, you'll lose the sale. If a market owner is a produce man he'll make this department pay, no matter where in the store it is located."

On the question of the use of color in a store's decorative scheme, one panelist stated that color, properly used, is a good merchandising gimmick. When it was first introduced, he pointed out, many dealers went "hog wild" and used color in such a way as to actually distract from the merchandise being displayed. Now, however, he

pointed out that the trend is to subdued colors and designs which can be attractive and yet functional.

On the question of store engineering, one speaker from the floor raised the question of how far a dealer should go in vetoing the recommendations of an architect. It was generally agreed that any such moves would have to be made through the market owner, because it doesn't pay to sell the architect short. Ideally, of course, as one panelist pointed out, the dealer should be in on the job first.

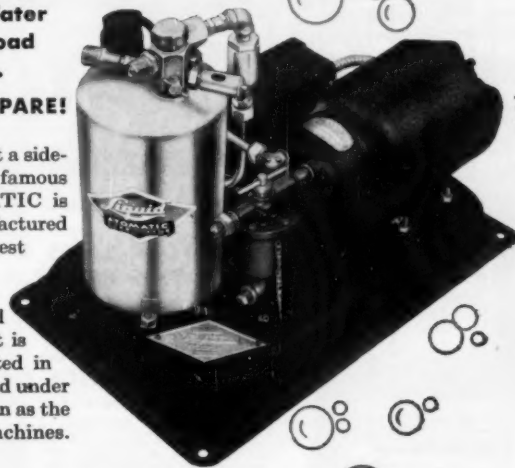
THE LIQUID ATOMATIC CARBONATOR... built by Carbonator men!

**SIMPLE TO INSTALL—
EASY TO SERVICE—**

**Produces Highly
Carbonated Water
under peak load
conditions.**

CAPACITY TO SPARE!

Carbonators are not a sideline with us. The famous **LIQUID ATOMATIC** is designed and manufactured by the world's largest producer of machinery for the carbonated beverage-bottler. It is assembled and tested in the same factory and under the same supervision as the larger bottlers' machines.



**PROFITABLE, SALES-SERVICE
FRANCHISES OPEN NOW**

It is easy to sell—Ideal for Fountains,
Restaurants, Drive-Ins and Bars. Write to:



THE LIQUID CARBONIC CORPORATION

3100 SOUTH KEDZIE AVENUE — CHICAGO 23, ILLINOIS

Circle No. 32 on Reader Service Card

NEW OKLAHOMA OUTLET TO HANDLE SERVEL UNITS

Federal Supply Co., Inc., of Oklahoma City, has been named distributor for Servel air conditioning throughout the state of Oklahoma.

Executives of Federal Supply are Louis Loeffler, Jr., president; George H. Shirk, vice-president, and Norman F. Loeffler, secretary and treasurer.

SCHAEFER NAMES TWO CANADIAN OUTLETS

Two new distributors for ice cream cabinets and "Clearview" merchandising cabinets in Canada have been named by Schaefer, Inc.

Cherry-Burrell Corp. of Canada, Ltd., Toronto, has been appointed distributor in Eastern Ontario, Quebec, Nova Scotia, New Brunswick, Newfoundland and Prince Edward Island. The company maintains branch offices and warehouses in Montreal and Sussex, N. B. G. E. Foote is manager.

Dairy Supplies, Ltd. of Edmonton, Alta., has been named distributor

in Alberta, British Columbia, Manitoba, Saskatchewan and Western Ontario. Branch offices and warehouses are maintained in Vancouver, Saskatoon and Winnipeg. George H. Ross is vice president and general manager.

NO DEATHTRAP HERE



EASILY FREEING HIMSELF from being closed in a freezer, this 3-year-old, 35-lb. boy demonstrates the ease with which any child large enough to crawl into a Universal home freezer can get out after the lid has been closed over him. This safety feature is made possible by having two lids on the freezer instead of one, both of which seal without using a latch of any kind. Additionally, a specially designed lock prevents accidental locking and the key can never be left in the lock.

NEW OUTLETS NAMED BY WESTINGHOUSE

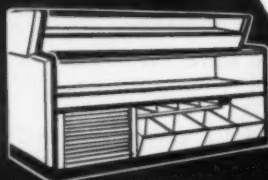
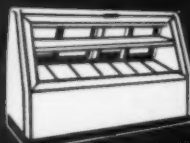
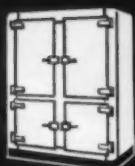
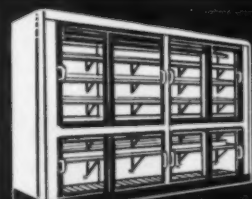
Four distributors have been awarded franchises by Westinghouse Electric Corp. to handle its air conditioning equipment.

B. F. Kohli, Inc., Lima, Ohio, has been named distributor for self-contained and field-assembled equipment, H. W. North Co., Erie, Pa., will handle field-assembled equipment, Air Control Co., Inc., Kansas City, Mo., and Simons Burner & Petroleum Corp. of Springfield, Mass., have been named to handle self-contained equipment.

RECO UNITS INSTALLED BY TESTING LAB

Due to the increased demand for environmental testing facilities, United States Testing Co., Inc., has requested Reco Products Div., Recony Corp., N. Y., to design and build several prefabricated sectional walk-in rooms.

These simply installed units are of modular panel construction, comprising walk-in rooms with insula-



Pinnacle

REFRIGERATED EQUIPMENT

Most Complete Line in the Country!

GIVE YOUR SALES A BOOST WITH THIS PROFIT-MAKER!

Every small store operator will want one to keep his fruit and produce green and saleable.

Double and Single Duty Porcelain SELF SERVICE CASES in 6 - 8 and 10 Foot Lengths

- Shows More — Sells More! • Large storage and display area. • Storage bins removable for refilling.
- All shelves scientifically refrigerated. • Freshness and quality maintained for long periods. • Exterior front, ends and wearing surfaces of gleaming white life-time porcelain. • Both citrus fruit and leafy vegetable sections flooded with bright, modern, fluorescent lighting. • Low operating cost. • Goes through 36" doorway. • Self-contained models also available.

Model STT Series — Single Duty, Illustrated.

OPEN SELF SERVICE — Dairy-Meat-Vegetable Cases. Self-Defrosting Freezers. DELICATESSEN CASES.

A few Pinnacle Territory Franchises are still available. Wire or write today for full information and illustrated literature.



REACH-IN BOXES. BAKERY FREEZERS. BUTCHER CASES... Double and Single Duty.

FULL VISION CASES. WALL BOXES... Dairy and Beverage. DOUGH RETARDER BOXES, etc.

Pinnacle

EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA

EXPORT DEPARTMENT — 39 Broadway, New York

Circle No. 33 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

tions ranging from 4 to 10" thick. These test chambers simulate conditions from -85 F to 160 F with relative humidity conditions ranging from 20 to 95%.

Room design incorporates a patented overlap construction principle, and the modular panels comprising the rooms are covered with a laminate of plywood and aluminum on the exterior, and plywood and stainless steel on the interior. Test chambers are compartmented to obtain rooms operating at varying temperatures and humidities, and all chambers are equipped with glass observation windows.

Some of the items to be tested in these rooms include aircraft component parts, electronic equipment, chemicals and foodstuffs, etc.



DISTRIBUTOR PLACES \$1 MILLION ORDER

A million-dollar order for self-contained air conditioning units has been announced by Carrier Corp.

The 1,000 individual units involved will be purchased by Carleton-Stuart Corp., distributor for Carrier in New York City and Westchester County. Larger than the familiar room air conditioners, they range in size from 2 to 15 hp. and will be installed in stores, offices and other commercial establishments.

The equipment will be shipped for installation in Carleton-Stuart's distributing area.

Cooling capacity of the equipment to be shipped to Carleton-Stuart will be the equivalent of 5,500 tons of ice melting over a period of 24 hours. This is enough refrigeration

to handle completely eight large business buildings the size of the 23-story Lever House.

The million-dollar order covers only self-contained units of the type used primarily in commercial air conditioning, and does not include Carleton-Stuart's 1954 requirements for year-round residential units, room air conditioners and built-up systems for commercial and industrial use.

BUY FROM YOUR REFRIGERATION WHOLESALE

G-E APPOINTS TWO WHOLESALE OUTLETS

Harold Sweeney Corp. has been appointed wholesale distributor of General Electric Co.'s boilers and furnaces in Philadelphia and the surrounding area. Sweeney already has the G-E franchise in that area for home cooling equipment.

Simons Sheet Metal Co. has also been appointed as a retailer-wholesaler by G-E.

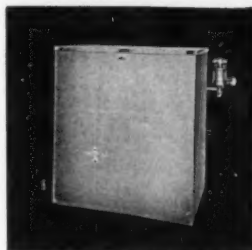
Simons will distribute home heating and cooling equipment in the Youngstown, Ohio area.

For Recognized Quality - Extra Gallons

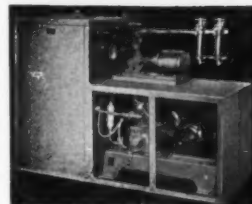
Sell Your Condensing Unit - Filtrine Water Coolers



Mess Hall—Cafeteria Cooler



Photographic—X-ray Cooler



Typical "Packaged" Circulating Chilled Water System

Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.

Promote your own condensing unit sales with Filtrine's 20-year-life construction...high capacity... Super Storage... more than 40 years' dependability.

COOLERS FOR MESS HALLS — CAFETERIAS

Conform with Fed. Spec. 00-C-566b

COOLERS FOR X-RAY & PHOTOGRAPHY

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

REMOTE COOLERS FOR ALL USES

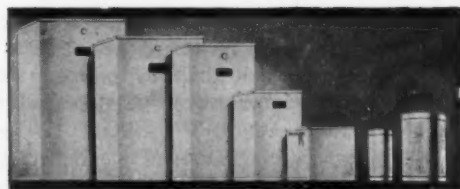
Sell your condensing unit with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.



Taste-Master

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.



Remote Model Coolers

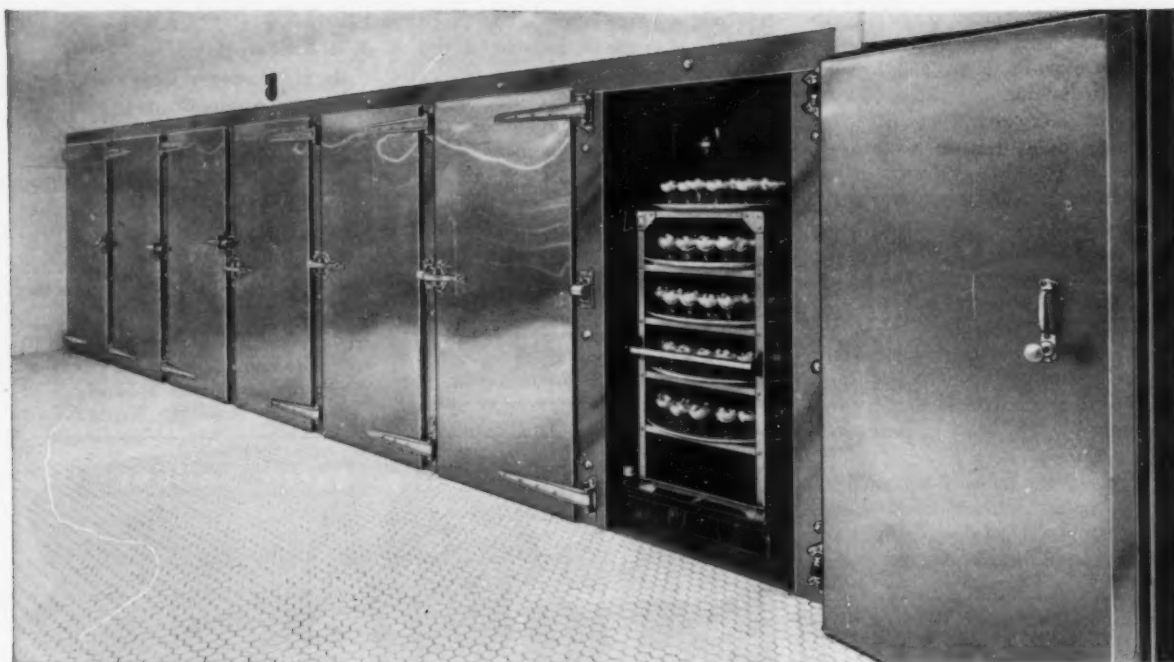
Filtrine
HIGH EFFICIENCY

Write for Catalog and Specification Guide

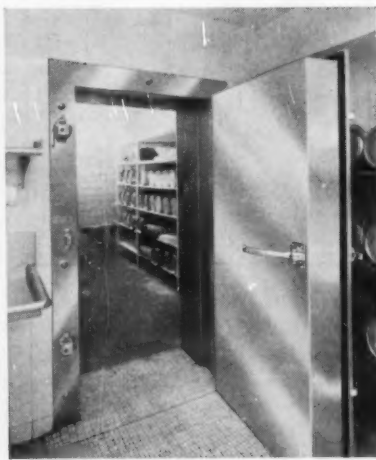
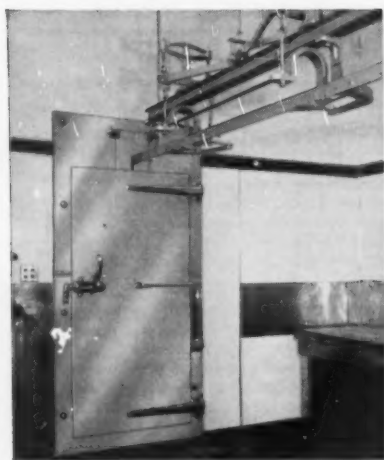
FILTRINE MANUFACTURING COMPANY • BROOKLYN 5 • N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 34 on Reader Service Card



Have Stainless Beauty + JAMISON Efficiency in 1 Door



Whether you need a door for coolers—frozen food storage to 0°F—or sharp-freezing operation to as low as -40°F you can have it PLUS by specifying the super-sanitary, easy to clean, beauty of stainless steel cladding in JAMISON Standard, JAMISON Lo-Temp or JAMISON Super Freezer Doors. For complete information, specifications and dimensions, write outlining your type operation to Jamison Cold Storage Door Company, Hagerstown, Maryland.



Circle No. 35 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

"SHOE HORN" . . .

Continued from page 38

is located against the opposite wall.

Here is how the multiple-circuit arrangement in the evaporative condenser was worked out:

Circuit A handles a 1-hp unit connected to a walk-in freezer and a 2-hp machine refrigerating 20 ft. of in-line self-service frozen food cases.

Circuit B involves three units—a 2-hp machine serving the walk-in meat cooler; another 2-hp unit for the 13-door reach-in, walk-in dairy and beverage refrigerator; and a $\frac{1}{2}$ -hp machine connected with a 10-ft. meat display case.

Circuit C consists of two 2-hp units handling 40 ft. of self-service meat cases.

Circuit D is comprised of two 1-hp units and a single $\frac{3}{4}$ -hp machine. The latter serves a fish and poultry display case, while one of the 1-hp machines handles a walk-in produce cooler. The other 1-hp unit takes care of 16 ft. of self-service vegetable cases.

The remaining circuit, designated as E, was not used at the time of the installation, but was left open to accommodate any possible future expansion of the market's operations. Excess space also was provided on the condensing unit rack for the mounting of additional units which might be necessitated by such expansion.

HUSSMANN OPENS NEW EXPANDED FACILITIES

Hussmann Refrigeration, Inc., has opened new and larger facilities in its Chicago branch office.

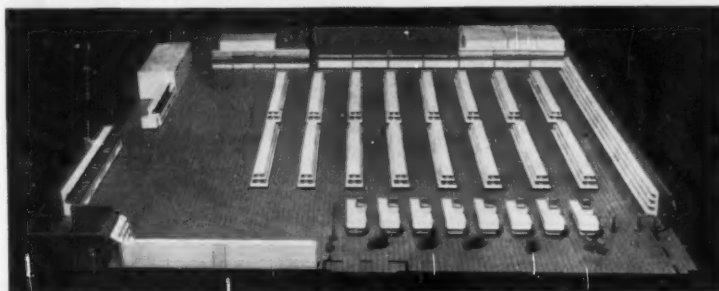
The expanded facilities will provide approximately 12,000 sq. ft. of office space, conference rooms, private offices for sales, store planning rooms, display area and storage quarters. W. H. Sudekum is branch manager.



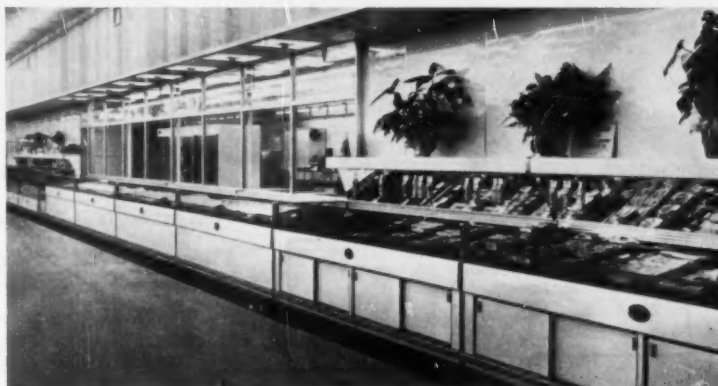
Self-Serve Set-Up Brings 100% Increase In Volume for Burned-Out Food Store



DISASTER struck this food market when the building was gutted by fire.



PLANS for a new market were started almost before the flames were out.



RESULT was completely self-serve operation which boosted volume 100%.

A 100% increase in volume is attributed by Arata Bros., food merchants of Sacramento, Calif., to new modern refrigerator equipment for self-service display.

Last November the Arata Bros. super market was entirely destroyed by fire. Cleaning up of the debris, rebuilding and re-equipping the market for business took just four months, so that the new market was opened for business in March.

Andrew Arata says that since the opening of the new store, volume of sales is up around 100% over that obtained in the old market. While he realizes that this increase may level off somewhat, he is of the opinion that most of the gain will be held.

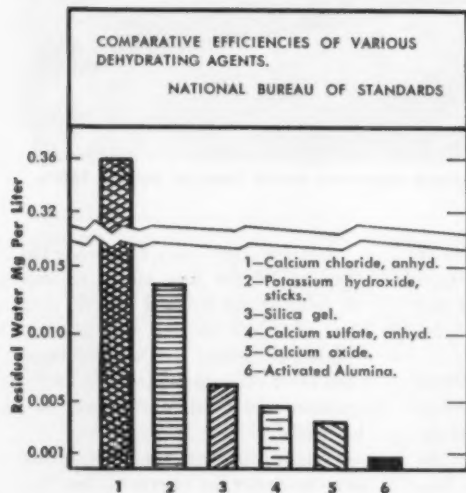
Charlie Rogers, western zone sales manager for Sherer-Gillett Co., worked with Arata Bros. in planning and equipping the new market.

"ACTIVATED ALUMINA DRIED . . . TO A
LOWER DEW POINT (MOISTURE CONTENT)
THAN ANY OF THE OTHER COMMERCIAL
SOLID ADSORBENTS TESTED."

From the National Bureau of
Standards report on Activated
Alumina (the ANDRITE desic-
cant in ANSUL REFRIGERANT
DRIERS).

Would you
want to argue
with the
**NATIONAL
BUREAU OF
STANDARDS?**

HERE ARE THE FACTS . . .



Andrite is a new development in activated aluminas which provides 40% greater drying area. This product is specially processed by Ansul for use in T-Flo Driers. *Andrite* removes moisture and acid which cause corrosion* in refrigeration systems. In fact, *Andrite* continues to remove harmful acids even when it is completely saturated with moisture.

The removal of acid and water, stops corrosion permanently.

By preventing the accumulation of acids in a system, leaky valve plates, leaky seals, and ruined hermetic windings can be eliminated. Systems protected by Ansul's Deep-Drying *Andrite* remain clean, factory bright and trouble free in operation.

*Ansul T-Flo Driers filter dirty systems, removing foreign substances and corrosion solids from previous contaminations.



ANSUL
Chemical Company

REFRIGERATION DIVISION • MARINETTE, WISCONSIN

MANUFACTURERS OF REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE
CHEMICALS, LIQUEFIED GASES AND FIRE EXTINGUISHING EQUIPMENT

Circle No. 36 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

NEWS OF THE INDUSTRY

TYWEL TO MAKE UNITS FOR OTHERS

Alexander M. Lewyt has announced the formation of a new company, Tywel Mfg. Corp. Lewyt will be president of the new corporation, which gets its name, Tywel, from the reverse spelling of Lewyt.

Tywel has been organized to manufacture air conditioning units for other companies, under their brand names.

The new Tywel factory, located in Brooklyn, has a single-shift manufacturing capacity of 100,000 window air conditioning units a year. Production of one-half, three-quarter, and one ton window units will start early in January.

Lewyt stressed that the new company would not

manufacture or sell any of its air conditioners under the brand name "Tywel" or "Lewyt".

He said, "There is a definite need for a manufacturer with engineering know-how and mass production experience in the air conditioning industry who will not compete with its customers by marketing its own brand".

Lewyt said that Tywel has overcome two of the consumers' greatest objections in its 1954 designs: first, the Tywel units do not project into the room beyond the average window sill; second, the filter can be readily changed.

Other features include thermostats, concealed push-button controls, two-speed cooling and ventilating, air exhaust and four-way directional grilles. The models are designed so that heaters can be furnished as optional equipment.

AIRTEMP DEBUTS NEW ROOM COOLER

Over 1,000 Chrysler Airtemp dealer and distributor sales persons attended a series of five room air conditioner sales conferences in five major cities during November and December where they were introduced to Airtemp's new room conditioner designed especially for case-unit window installation.

During these meetings in New York City, Atlanta, New Orleans, Dallas and Chicago, the company also announced that a 1/2-hp model will be added to the present line of 3/4 and 1-hp conventional window units.

Thermostatic temperature controls will be standard equipment on 1-hp units and will be offered as optional equipment on other models.

DR. M. L. GHAI HEADS RESEARCH FOR BUSH

In an expansion of Bush Mfg. Co.'s product development program, Dr. M. L. Ghai has been appointed director of research and development.



Dr. M. L. Ghai

Born and brought up in India, Dr. Ghai is a graduate of Benares University with a B. S. degree in mechanical and electrical engineering. He also holds a Final Grade diploma from the City and Guilds College, London, an M. S. degree from Northwestern University and a doctorate in mechanical engineering from Illinois Institute of Technology.

Prior to joining Bush, Dr. Ghai was assistant director and chief of the Heat and Power Div. of the National Physical Laboratory in New Delhi, a laboratory which corresponds to the National Bureau of Standards in Washington, D. C.

Before that, he headed the heating and air conditioning research department of the Pullman-Standard Car Mfg. Co. where he developed a new refrigeration cycle for air conditioning railway cars and guided research on new heating methods.

NATIONAL RADIATOR BUYS VIKING ASSETS

The National Radiator Co. of Johnstown, Pa. has announced that it has purchased from the owners the principal assets of the Viking Air Conditioning Corp. of Cleveland.

Marion I. Levy, president of Viking, has been elected a vice president of National Radiator Co. and named general manager of the former Viking operations in Cleveland which will be continued under the name of Viking Air Conditioning Div. of National Radiator.

Viking Air Conditioning has been a principal producer of blowers for warm air furnaces, humidifiers, attic and window fans and has recently entered the field of window type summer air conditioning units. No changes are contemplated in personnel or in Viking's previous manufacturing and merchandising policies.

In recent years, National Radiator has developed new lines of residential packaged boilers, non-ferrous convectors, baseboard radiation and gas burning equipment. In announcing the acquisition of Viking, National Radiator spokesmen stated that the move was a further step in the direction of broadening that company's activities in the fields of heating, and summer cooling.

FINISHES \$200,000 PLANT IMPROVEMENT

Fresh'nd-Aire Co., Chicago manufacturer of electric room air conditioners and a complete line of air treatment appliances, has just finished a \$200,000 improvement program at their recently acquired Grayslake, Ill., manufacturing plant.

LONG BEACH IS SITE OF ARI CONFERENCE

First of the 1954-1955 series of Educational Conferences sponsored by Air Conditioning and Refrigeration Institute will be held March 10, 11 and 12 in Long Beach, Calif.

The Municipal Auditorium will be the site of the conference, and the Wilton Hotel will be headquarters for the exhibitors.

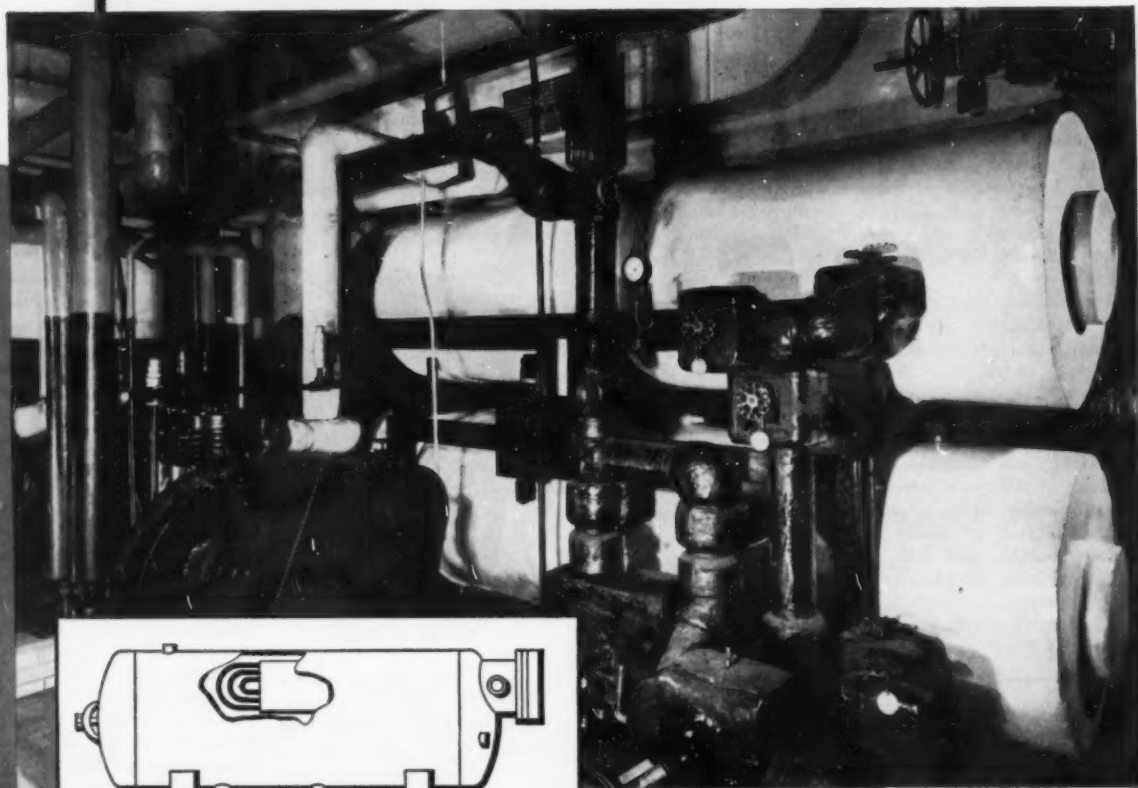
The Long Beach conference is being held in conjunction with the state convention of California RSES chapters.

Nov. 18-20 are tentative dates for the second ARI conference, with Minneapolis the city.

RACCA, REWA and NCRSA have been invited to conduct independent meetings or programs to run concurrently with the RSES meetings now held at each of the conferences.

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from a **p-k** storage water chiller



Fresh, chilled drinking water is efficiently supplied
to all 17 floors of the New York Times building in New York
by means of a new **p-k** combination
water storage tank and built-in chiller.

With this design, smaller chilling surface
and refrigerator compressor capacity can
be used and the load factor is improved.
Individual water coolers are dispensed with
and concentration of cooling facilities in
one central location reduces initial invest-
ment and facilitates servicing. Fluctuating
water requirements are easily met without

temperature change. Any new or present
compressor equipment can be used.

p-k storage water chillers are available
in many sizes and in various kinds of
materials to suit individual requirements.
These same storage cooler units are appli-
cable to any liquid cooling application, in
process and other industrial plants.

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JANUARY, 1954 • COMMERCIAL REFRIGERATION

CARRIER RECEIVES \$2 MILLION ORDER

A \$2 million order for room air conditioners, year-round residential units and packaged cooling units has been placed with Carrier Corp. by Temperature Equipment Co., Chicago Carrier distributor.

H. J. Prebensen, president of Temperature, completed the transaction with John M. Bickel, vice president and general sales manager of Carrier's Unitary Equipment Div.

This order, believed to be the largest single contract for unitary air conditioning ever placed, is a 100% increase over the initial order placed by this distributor for 1953.

"The market for air conditioning opened up in a large-scale way in this area in 1953," Prebensen said. "Our orders this year were 60% above 1952, but we were still unable to supply the demands of our dealers. We believe that 1954 will show an even greater increase in sales."

Prebensen announced a dealer financing plan, said to be new to the air conditioning field, which will enable dealers to purchase equipment on a percentage-of-cost basis, making it possible for them to carry a much larger inventory than has been possible in past years.

MARLO BEGINS WORK ON \$2 MILLION PLANT

Marlo Coil Co., St. Louis, has started construction on a new plant which will total 260,000 sq. ft. when completed, four times the company's present plant size.

The first unit of 80,000 sq. ft. is expected to be in operation about March 1, 1954. The remaining two units are scheduled for completion within the next two years.

The present plant will cease operation when production at the new location has reached sufficient volume to meet current demands.

The new \$2,000,000 building, of one-story brick construction, will be located on a 23-acre tract on St. Louis' south side. It will be approximately 400 by 600' in size. It will utilize specially designed production equipment throughout.

ECLIPSE ACQUIRES SOLENOID DIVISION

Eclipse Fuel Engineering Co., Rockford, Ill., has acquired the Solenoid Valve Div. of Wheaton Engineering Co., Wheaton, Ill.

The purchase includes complete production equipment, patents, engineering drawings, etc. Production of solenoid valves, listed as Eclipse Series "DO", began in Rockford early in October.

HUDIK NAMED HEAD OF FHA COMMITTEE

Frank Hudik, a veteran in the air conditioning field and president of Comfortair Co. Hackensack, N. J., has been named chairman of a new Air Conditioning Requirements Committee of the Fed-



Frank Hudik

eral Housing Administration. He will serve without compensation.

Other members of the committee serving with Hudik are Fred Boxall, president of Bahnson Co., Winston-Salem, N. C.; and James L. Hoyer, a consulting engineer, Washington, D. C.

Hudik said the committee was set up to establish standards for residential air conditioning for the F.H.A.

"As conditions are today," Hudik declared, "firms with or without experience are invading the field."

"With more than 650,000 residences expected to be air conditioned in 1953, and improved techniques, along with mass production, making it likely that air conditioning will be available even for low-cost homes within five years, steps must be taken to protect the house buying public."

"It is toward this end that we have been asked to work with the F.H.A.—to set up standards of installation and performance, and to set forth a clear definition of the responsibilities of the installing firm."

"These factors will include sound engineering, coordination of the duct distribution system, heating and the refrigerating cycle, as well as the provision of proper equipment geared to perform to high standards."

ASHVE TO MEET IN HOUSTON JAN. 25

The 60th annual meeting of The American Society of Heating and Ventilating Engineers will be held in Houston, Tex., January 25-27, 1954.

Plans for the meeting, at which a total of 13 technical papers will be presented at 4 sessions, are now complete according to D. M. Mills, general chairman of the committee on arrangements for the South Texas chapter.

Topics to be covered in the sessions include cooling towers, automobile air conditioning, panel heating and controls, the heat pump, the availability and utilization of solar energy for heating, air jets, room air distribution, a new type radio-meter, residence cooling and building heating.

The first session will be held at the Rice Hotel, meeting headquarters, on Monday morning, with ASHVE president Reg. F. Taylor, Houston, presiding and L. T. Mart, Kansas City, Mo., as chairman.

Registration of members and guests will begin on Sunday, January 24, at the Rice Hotel and will continue through Wednesday. The Houston members expect an attendance of 1,200 members and their friends.

GETS PATENTS ON NEW DRYING METHOD

Commonwealth Engineering Co., Dayton, Ohio, recently received three new patents on its "Stepfreeze" method of dehydration of heat sensitive materials.

These fundamental patents, dealing with methods of dehydration and freezing apparatus, constitute the latest Commonwealth contributions to this new method of dehydration by freezing.

With this method, dehydration is achieved by removing water in the form of ice crystals without disturbance of the solids.

This process has been applied to the dehydration of milk and cream, fruit juices, beer, wines and to various heat sensitive chemicals.

DELTA REWA ELECTS NEW OFFICERS



NEW OFFICERS for Delta Refrigeration Wholesalers Association are, left to right: R. E. Warwick of Plumbing Wholesale Co., re-elected national director; Miss Hazel McQuiston, formerly with United Refrigeration Supply Co., re-elected secretary-treasurer; and Henry Hand, owner of Hand Supply Co., elected president. Howard McAdams, of Enochs Sales Co., not present for the photograph, was elected vice president.

G-E TO BUILD NEW F.H.P. MOTOR PLANT

Plans to construct a modern manufacturing plant at Jonesboro, Ark., which will employ approximately 300 people, were recently announced by H. A. MacKinnon, vice president and general manager of the General Electric Co.'s component products division.

According to MacKinnon, the new plant is to be part of the company's specialty fractional horsepower motor department and will manufacture small blower and fan motors for refrigerators, air conditioners, and other equipment.

The company official went on to say that the department will maintain its headquarters in Fort Wayne.

Construction of the Jonesboro plant on a 30 acre plot is to begin almost immediately and is expected to be completed sometime in early 1954.

FISCHMAN CO. NAMES 4 DISTRIBUTORS

Four exclusive franchise distributors to handle the "Style-master" and "Challenger" lines of soda fountains have been appointed by Fischman Co. of Philadelphia.

M. D. Reber of New Orleans has been named distributor in that metropolitan area, including parts of Mississippi. He had 25 years' experience with Liquid Carbonic Corp. previous to his association with Fischman. The southern Missouri area will be covered by Fred Savage of Springfield, Mo. He was formerly a sales engineer with Liquid Carbonic Corp.

Metropolitan Richmond, Va., will be covered by Joe Hodnett Enterprises, Inc. The firm is headed by J. W. Hodnett, Jr. who for the past three years was associated with Owens & Milner Co., Richmond, as a sales engineer. Preston Buford of Tampa, is the new distributor for the state of Florida. He was affiliated for nearly 40 years with Liquid Carbonic.

LAWLER MOVES UP AT WORTHINGTON

Election of Matthew M. Lawler as vice president in charge of the Air Conditioning and Refrigeration Div. for the Worthington Corp. has been announced by Hobart C. Ramsey, president.

Lawler joined Worthington in 1936 and has been assistant vice president and



M. W. Lawler

manager of the Air Conditioning and Refrigeration Sales Div. since Sept. 1950.

"The appointment of Lawler to take full responsibility for our air conditioning operations is part of our program to expand very substantially in this field," Ramsey said.

"We believe that air conditioning may in a few years give us a larger sales volume than any other division of our business.

"Our new plant in Decatur, Ala., is scheduled to go into production by the end of this year.

Lawler has served as vice president of the Air Conditioning and Refrigeration Manufacturers Association, and as a member of the board of directors and executive committee of the Air Conditioning and Refrigeration Institute.

REVCOR EXPANDS

Revcor, engineers and manufacturers of blower wheels, recently moved from their Chicago location into a large modern plant in Carpentersville, Ill. The new plant gives Revcor complete research and design facilities.

FLANNERY HEADS ARI CONFERENCE GROUP

E. M. Flannery of Bush Mfg. Co. has been named chairman of the ARI Educational Committee which will direct the policy, location and time of the three Educational Conferences to be held during 1954-55 following the All-Industry Show.

Other committee members are K. B. Thorndike, Detroit Controls, vice chairman; G. E. Graft, Ranco; Paul Domke, Mueller Brass Co.; and J. F. Ray, General Controls.

WORTHINGTON BUYS NEW PLANT SITE

Worthington Corp. recently acquired a 66-acre tract along the Tennessee River at Decatur, Ala. at an auction from the TVA. The land is a final piece of property in an 137 acre tract needed for the new \$3,500,000 plant. Worthington is building at Decatur to manufacture air conditioning equipment.

E. J. Schwanhauser, executive vice president of the corporation, described the new plant as a "spearhead" in the firm's large-scale expansion in the air conditioning field, particularly in home air conditioning.

"We are delighted we were able to add this property to the other 70 acres we are purchasing. We want plenty of room to grow. We believe that air conditioning may in a few years give us a larger sales volume than any other division of our business," he said.

EXPANSION SET BY WESTINGHOUSE

More than \$4 million will be spent at the Westinghouse Electric appliance division plant in Springfield, Mass., as the first step in an extensive expansion program, according to J. R. Weaver, plant manager.

"Increasing demands for Westinghouse motored appliances have made it necessary to step up our production," Weaver explained. "This initial appropriation will be used to realign our manufacturing facilities and equip the plant with the latest tools and machinery. The entire amount will be spent for production equipment to increase our output. No additional building construction is planned at this time."

All Westinghouse motored appliances will be manufactured in Springfield. These include fans, water coolers, dehumidifiers, etc.

SIMPSON DOUBLES PLANT FACILITIES

Facilities for the production of electrical testing equipment at Simpson Electric Co. have been doubled during the past year, according to a report from Robert Brand, factory manager of the firm's Chicago plant.

Brand's announcement followed extension of the Wisconsin plant, one of the three plants now operated by the company. The third plant is located in Aurora, Ill., and a new fourth plant is located adjacent to Simpson's Chicago home office.

CARBONIC DISPENSER OPENS WAREHOUSE



A NEW WAREHOUSE containing 7,800 sq.ft. of floor space has been constructed by Carbonic Dispenser, Inc. in Canfield, Ohio. The building is an addition to their new plant and offices which were occupied last March. The Canfield plant serves the eastern half of the United States and Canada, while the company's west coast plant, located in Los Angeles, serves the western half of the country.

ANOTHER CASE OF

Copper

WHERE IT COUNTS

4,800 FEET OF TYPE "L"
REVERE COPPER WATER TUBE,
IN SIZES FROM 1" TO 6"
USED IN AIR
CONDITIONING SYSTEM OF
U. S. Fidelity and
Guaranty Company Bldg.
Baltimore, Md.

Take a good look at the two photographs below. Then visualize this same installation made with threaded fittings and think of the time that would have been consumed running these lines. No wonder more and more copper tube is being used for air conditioning, water and waste lines.

You don't have to worry about wrench room in the tight corners, solder joints are made much faster, present a much cleaner appearance. And you need never worry about replacing copper tube due to rust, for copper can't rust. There is no loss of flow or pressure, no allowance in pipe size need be made for rust accumulation with Revere Copper Water Tube. There are fewer fittings, too, on the long runs, as Revere Copper Water Tube comes in straight lengths of 20' in hard and soft tempers and 60' coils in soft temper. It's easy to bend, too.

Keep out of trouble, protect your reputation for quality work, with copper. Use Revere Copper for air conditioning lines, radiant panel heating, hot and cold water lines, underground service lines, waste stack and vent lines, processing lines. See the Revere Distributor nearest you today. And, if you have a technical problem, he will put you in touch with Revere's Technical Advisory Service.

REVERE

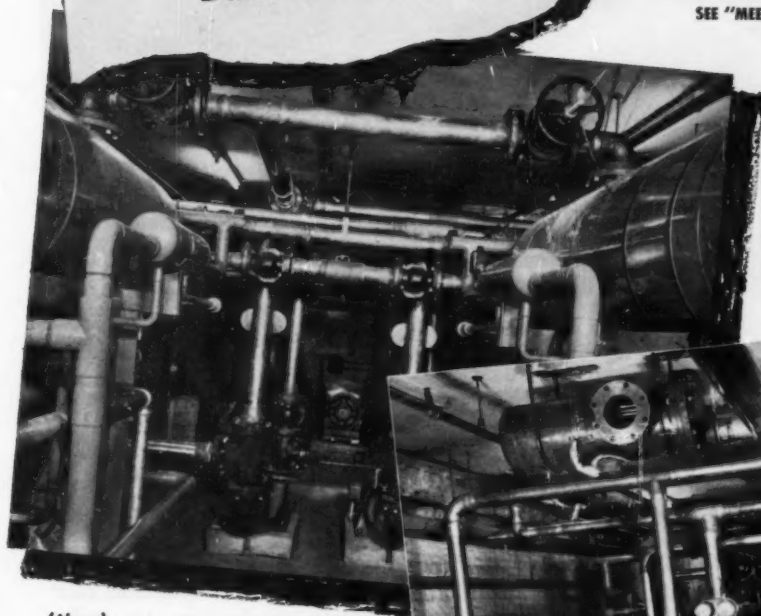
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

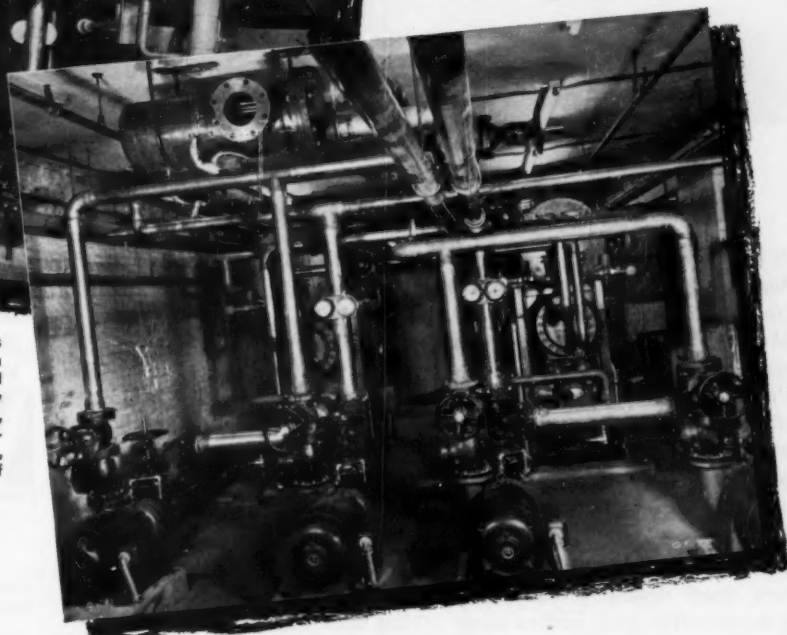
*Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.;
Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere.*

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS



(Above)

REAR VIEW of system which air conditions the entire building of 9 floors, and has a capacity of 150 tons. Cooling tower is located on roof. System was completely installed by H. E. CROOK COMPANY, INC., Plumbing, Heating, Electrical and Air Conditioning Contractor. Tube was supplied by Revere Dist., J. T. ROBERTS & BROTHER, INC., both of Baltimore.



(Below)

FRONT VIEW of air conditioning system showing the neat-appearing, non-rusting Revere Copper Water Tube. Photo shows system before it was put into operation and before cold water lines were insulated.

Circle No. 37 on Reader Service Card



"It sure gets rid of the gook!"

It in this case is "Virginia's" new degreasing solvent sold under the trade name of Virginia No. 10. Made expressly for refrigeration, electrical and automotive use, Virginia No. 10 fills the need for an effective degreaser that can be used with comparative safety.

Whatever you expect a degreaser to do, Virginia No. 10 does it—like a charm. Removes oil, grease and grease-bound dirt in a flash. It has very good drying properties, is non-corrosive and, unlike some

solvents, will not cause the rusting of machined parts.

But Virginia No. 10 is much more than a good degreaser. It has a dielectric strength of 20,000 volts. The significance of this is it will not attack electrical insulation or leave any current-carrying residues. Its flammability hazard is very low. And you can stand a concentration of 200 parts per million for hours without harm—it's about 8 times less toxic than carbon "tet."

Virginia No. 10 is available in 1 gallon factory-filled cans from your favorite wholesaler. Or write **VIRGINIA SMELTING Co., Dept. 64, West Norfolk, Va.**

VIRGINIA
Refrigerants

ESOTOOL • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

Circle No. 38 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

THE COMMERCIAL REFRIGERATION and AIR CONDITIONING APPLICATIONS MANUAL

by William M. Brewer

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

Two Solutions to Problems of Installing Packaged Units in Existing Retail Stores

ACCCEPTANCE of air conditioning by the operators of large retail stores in the 8000-10,000 sq. ft. range—which includes most “five and dime” stores, large dry goods and variety stores, and many super markets—has become so general that few new stores of this type are built without air conditioning being included in the original plans and specifications.

This trend in new construction of such stores is rapidly forcing operators of existing stores to “join the parade” by installing air conditioning of some sort in their own establishments.

Such installations, of course, present many difficult problems which are not encountered in new store installations. These problems include such things as drains, water supply, equipment space, and (toughest of all) sheet metal duct work.

In high-volume retail stores of this type, the use of package units located within the sales area is the least desirable method of air conditioning, from the customer's standpoint, because of the extremely high value placed upon each square foot of floor area.

Remember that stores of the size which we are discussing generally require from 20 to 30 tons of air conditioning. This would mean, in most cases, as many as four package units located in the sales area. These units would occupy up to 50 sq. ft. of valuable floor space.

For this reason alone, therefore, it is desirable to locate the equipment outside of the sales area. Stores of this type usually have some sort of warehouse or storage area located either above or below the sales floor in which the air conditioning equipment can be located.

Placing of the equipment in a remote location such as this, however,

immediately creates a problem of providing sheet metal ductwork for air distribution to the conditioned area.

Inasmuch as these stores usually are over 100 feet long, the amount of ductwork required for remote equipment installations can be quite extensive. In rooms of this length, the air cannot be distributed satisfactorily from either the front or back wall, so usually an exposed duct is run the length of the store, either down the center of the ceiling or along one side wall.

This long run of ductwork not only raises materially the cost of the installation, but it is also unsightly, unless expensive furring and painting is added to conceal it or blend it with the rest of the interior. Furthermore, the installation of this ductwork necessarily interrupts the store's sales efforts by requiring complete closing of the store or at least of large portions of the sales area during the installation.

Ductwork problems such as these have discouraged the management of many of these stores from installing air conditioning at the present time.

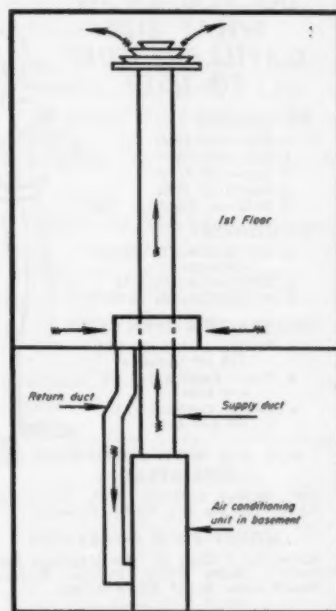
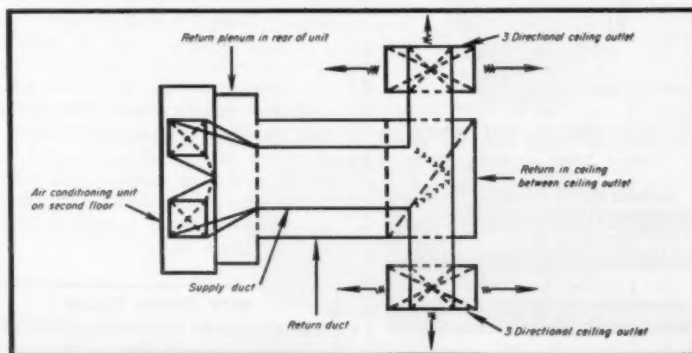
There is no easy answer to this ductwork problem in such existing stores that will apply to all cases, but a couple of simple application techniques have been developed which will eliminate this problem in many instances.

For instance, if the air conditioning equipment is to be located in a second-floor warehouse space above the sales area, the following simple method can be applied.

Select two package units of equal size, the combined capacity of which equals the required tonnage for the

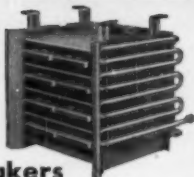
FIG. 1 (below): Plan view of suggested installation in retail store where equipment is located in space above the conditioned area.

FIG. 2 (right): Elevation view of suggested procedure for installation of package air conditioners in space below the conditioned area.



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Freeze
Finned
Cube Makers**



The PEERLESS Finned Faster-Freezing Cube Maker provides both refrigeration and rapid ice-cube manufacture from a single, balance, compact unit. Its fin coils are standard PEERLESS coils with nonsoldered return bends... the ice-cube maker is standard PEERLESS all-aluminum construction. Easy installation and trouble-free operation are outstanding features; these Finned Cube Makers are available with either copper or aluminum tubing, permitting choice of refrigerants. Plain type cube makers also available. Sizes, capacities for all requirements. Designed to meet government specifications. Write for details.

Peerless of America, Inc.

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job. Locate these two units in the center of the storage area, from side to side, with one being placed approximately one-quarter of the length of the store from the front wall and the other placed one-quarter the length from the back wall.

From the top of each of these units, install a supply duct running down to the floor of the warehouse area. At this point, split the duct into two equal branches and pass them through the floor to the ceiling of the sales area several feet apart.

Each of these ducts should terminate in a special ceiling diffuser which distributes the air in three directions, as shown in Figure 1. Between the two supply outlets for each unit, install the return grille and the return duct leading back to the unit.

It is important that the ceiling diffusers distribute the air in the three directions away from the return air, so that short circuiting of the supply air does not occur. Therefore, standard round ceiling outlets cannot be used.

As can be readily seen, this method of installation results in a minimum of ductwork. Also, very little work is required in the sales area, resulting in a minimum of interruption to normal business operations.

Several manufacturers of ceiling dif-

fusers make combination supply and return outlets which are very efficient, provided the air requirements are low enough to use the sizes available. Remember that we are discussing jobs that need from 10,000 to 14,000 cu. ft. of air per minute.

If the warehouse area is located under the sales area, rather than overhead, then the two package units should be located in this basement space in the same relative position as described for the second floor installation.

In this case, the ductwork is even simpler. Run the supply duct, either round or square, straight up through the floor from the top of the unit, continuing it in the form of a column up

BOOK REVIEW

Title: Pipe and Tube Bending
Author: Paul B. Schubert
Publisher: The Industrial Press,
New York City
Price: \$5.00

This practical working manual describes and illustrates all the common methods of bending ferrous and non-ferrous pipe and tubing details, the machines, fixtures, and devices used, and gives data and pointers that are useful in both the shop and field. It was written for shop and field men, designers and engineers who are concerned with the bending of pipe and tubing for all types of indoor and outdoor applications. Information and data is so arranged that reader can readily compare various methods and become familiar with their respective advantages and limitations. A large number of illustrations and line diagrams are included together with 15 helpful tables which add to the value of the 183-page, cloth-bound book as a practical working manual.

STOP GUESSING

USE

**DO YOU KNOW
WHAT SIZE
CAPILLARY TUBE
TO USE?**

TO REPLACE

- High Side Float
- Low Side Float
- Expansion Valve
- Restrictor Tube
- Original Capillary Tube

TO CONVERT

- 50° Systems To Methyl Chloride
- 50° Systems To F-12
- Methyl Chloride To F-12

FOR SEALED & OPEN UNITS

- Refrigerators 1/20 to 1/5 HP Inclusive
- Water Coolers 1/4 HP and Less
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FOR USE WITH FOLLOWING REFRIGERANTS

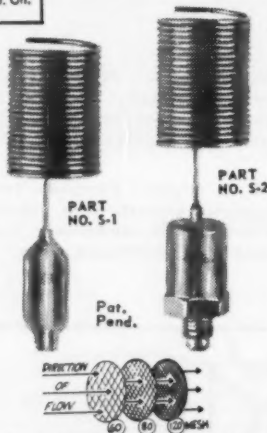
50°, Methyl Chloride, F-12, F-21, F-22, F-114, Carrene and Methyl Formate.

MONEY BACK GUARANTEE

Write For A Copy of "The Capillary Tube Story", Facts Every Service Engineer Should Know About Strain-O-Kap.



- No Cutting
- No Adjusting
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Strain-O-Kap the Most Versatile Metering Device with the Exclusive Triple Straining Action

Available at Your Jobber

Wagner Tool & Supply Corp.,

REFRIGERATION PARTS AND TOOLS

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through the sales area to within 2 feet of the ceiling, or at least 10 feet above the floor level. On top of each of these duct columns install a circular ceiling diffuser in an inverted position, as indicated in Figure 2.

The return duct can be installed near the floor at the base of the supply duct, or at any convenient place near the unit locations. This method also required a minimum amount of ductwork in the sales area, and utilizes a total floor space of only 6 to 8 sq. ft. The duct columns, of course, can be furred in or painted to blend with any store decor.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

"I STARTED SCHOOL AT 40



Typhoon Regional Training School, that is!"...

At the Typhoon training school they set up in my city I learned how to make more money out of air conditioning. I got straight-from-the-shoulder facts about the air conditioning business — how to estimate it, install it and service it — how to promote it, sell it and make dough on it. Everybody in my shop is going to graduate from this school—it's a real service Typhoon is doing for its dealers! No wonder they call Typhoon the most cooperative factory in the business.

You Profit 5 Ways with a Typhoon Franchise...

- 1. CLOSE FACTORY COOPERATION**—You deal direct with the Typhoon factory. Every member of the organization is ready to pitch in and work with you personally—from the service manager or chief engineer right on up to the president.
- 2. YOUR PARTNER, THE DISTRICT MANAGER**—when there's a complicated job to figure, when the sale hangs in the balance...your Typhoon district manager is Johnny-on-the-spot.
- 3. TOPNOTCH ENGINEERING**—Typhoon units are ruggedly built with plenty of reserve capacity...they deliver full rated performance under peak load conditions.
- 4. COMPLETE LINE** of packaged air conditioners from 2 to 25 tons. You always have just the size unit your customer wants — when he wants it — competitively priced. You're set up to handle any job in town — efficiently, economically.
- 5. REGIONAL TRAINING SCHOOLS**—intensive sales-engineering course by factory experts, conducted in your own territory. Every employee who attends is worth more money to you!

Air Conditioning Units 2 to 25 tons •
Multi-Packaged Systems up to 60 tons •
Evaporative Condensers • Packaged
Water Chillers • Air Handling Units

And Typhoon leads in air conditioning for the home—with a complete line of year-round heating-cooling units and heat pumps.



Write for information about a Typhoon franchise in your territory

TYPHOON AIR CONDITIONING CO., INC.

794 Union Street
Brooklyn 15, N. Y.

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Specialists in air conditioning since 1909

Circle No. 48 on Reader Service Card

and AIR CONDITIONING • JANUARY, 1954

Typhoon Air Conditioning Co., Inc.
794 Union St., Brooklyn 15, N. Y.

C-1

I would like to know more about the Typhoon Franchise.

Name _____

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Equal Stature with Manufacturer And Labor Is Urged for Contractors

ELEVATION of the contractor to equal stature with the manufacturer and with labor, thus setting him apart from the "alley mechanic" type of competition, has been set as one of the goals of the comprehensive new program of the Refrigeration and Air Conditioning Contractors Association.

This point was emphasized by Ray Kromer, executive secretary of the association, when he outlined the "revitalized" program before RACCA members during the group's 8th annual convention.

Must Protect Interest

Declaring that qualified contractors must protect their interest in the packaged and room air conditioner business, and pointing out that this matter also is a concern of labor, Kromer indicated that RACCA and the United Association of the Plumbing and Pipe Fitting Industry (AFL) undoubtedly would pass a resolution similar to the one adopted recently on automotive air conditioning and truck refrigeration.

(Complete text of this latter resolution was published in the Contractor's section of the December 1953 issue of COMMERCIAL REFRIGERATION AND AIR CONDITIONING.)

Meeting Set Jan. 7-8

Another meeting of representatives of the two groups is scheduled to be held January 7-8 in Washington, D.C., with residential air conditioning as the principal subject for discussion.

These moves are further indication of RACCA's announced intention of aggressively promoting the position of its members in new industry fields.

Kromer declared that negotiation at the national level with manufacturers, jobbers, and labor, and policing of qualified standards, are

deavor to further increase the value and benefit of the association to its members. Discussions already have been started with manufacturers and labor, he reported, and will be under way soon with jobbers.

Kromer also emphasized the importance of strong local contractor groups, describing them as the "backbone" of the national association.

J. HEFFERNAN ELECTED DETROIT RACCA HEAD

Joseph Heffernan, of Joseph Heffernan Co., was elected president of the Refrigeration & Air Conditioning Contractors Association of Detroit at the annual meeting of the association.

Other newly elected officers of the association are Victor Buch, Buch Mfg. & Supply Co., vice president; executive secretary and treasurer, William J. Schemers; counsel, John D. Pheney.

Elected for the term expiring in 1956 are the following directors: Charles Heemstra, Commercial Refrigeration Service Inc.; John Duncan, J. Duncan & Sons Co.; Lloyd Dickey, Dickey & Tudhope Refrigeration Service; and M. J. Watson, Johnston Refrigeration Service. William J. Schemers was named a director to fill the term expiring in 1955.

CENTRIFUGAL UNITS USED IN OIL REFINERY

Two big centrifugal ammonia compressors have been purchased for use in a Japanese oil refinery.

The installation will be used in removing paraffin from lubricating oils, in a process called MEK dewaxing. It is the first known application of centrifugal ammonia compressors to this process. The compressor will be installed at the

Nippon Petroleum Refinery, Yokohama, Japan.

Although direct compression of ammonia by reciprocating units is common, centrifugal compression is a recent innovation permitting considerably greater tonnages in proportion to the size and amount of equipment.

The two compressors will be driven by a 2,700 hp condensing turbine. The base refrigeration load will be approximately 1,250 tons with additional side loads carried by the compressors at intermediate stages.

INDUSTRIAL USER PRICES EXTENDED IN S. CALIF.

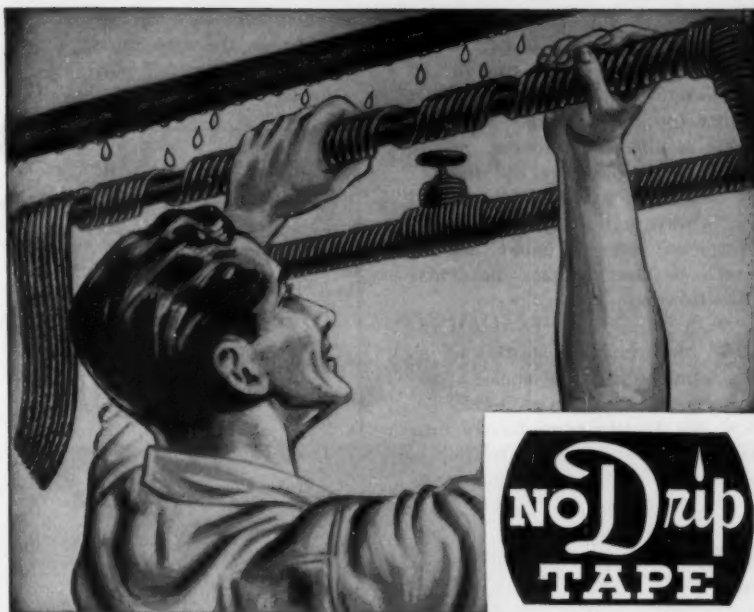
Industrial user prices, which in the past had been granted by refrigeration wholesalers to bakeries, brewers, and meat packers, have recently been extended to hotels and hospitals, according to a recent survey reported by the Refrigeration and Air Conditioning Contractors Association of Southern California.

The industrial user price, as it has been worked out in this area, is a practice of wholesalers extending to industrial users a price some 20 to 25% over the discount available to contractors. This enables contractors, the local association maintains, to compete on an even basis with wholesalers in submitting bids for work to be done for users in all of these industrial categories.

SYSTEM REGULATES TEST CHAMBER WITHIN $\frac{1}{2}^{\circ}$

Tenney Engineering, Inc., in cooperation with Bristol Co., have developed a temperature control system which regulates temperatures in an environmental test chamber within $\frac{1}{2}^{\circ}$ F for the Culver City, Calif., plant of Howard Hughes. The plant needed a 27 cu. ft. temperature-humidity chamber which could be controlled with closer temperatures than could be provided by simple on-off controls. Hughes wanted 1% accuracy over a temperature range from 32 to 212 F.

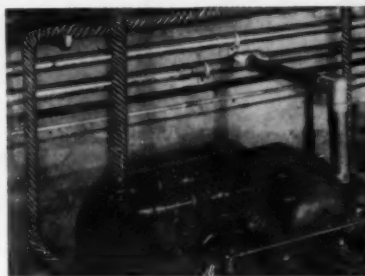
Tenny's "proportional-input" control provides this close control which is not available with on-off control because of the lag or drag



STOPS CONDENSATION DRIP

Yes, indeed, it takes care of the vexatious drip and sweating problem connected with cold water pipe installations. NoDrip Tape is pliable, cork-filled, 2" wide. When wound around pipes, it forms a tight fitting, moisture-proof jacket. Holds temperatures steadier, eliminates icing and frosting, prevents rusting, keeps pipes and floors dry.

Just the thing for pipes and suction lines running from refrigerating machines to condensers.



Use on refrigerant lines in air conditioning systems, walk-in freezers, deep freezers and on basement cold water pipes.

EASY TO APPLY

You don't need tools, brads or experience to apply NoDrip Tape. Just wrap it around pipes and press into place with your hands. Anybody can do it. Try a roll on a short section of pipe and compare with uncovered portion.

EFFECTIVE IMMEDIATELY

Follow the easy application directions on the package and you'll be surprised at results. You'll not be bothered with sweating and drip any more.

ORDER THROUGH YOUR SUPPLY HOUSE

Write for Interesting Circular

J. W. MORTELL CO.

Technical Contings since 1895

533 Barch St.,

Kankakee, Ill.

CONTRACTORS—Include NoDrip Tape protection in your estimates to stop drip, preserve pipes and fittings and also for good appearance. NoDrip is brown in color, but can be painted any color with cold water paint.

Roll covers about 10 ft. of $\frac{1}{2}$ " i.d. iron pipe or 13 ft. of $\frac{1}{2}$ " o.d. copper tubing.

\$1.69

Higher west of Reader & Canada

MANUFACTURERS and SERVICE ENGINEERS

NoDrip Tape has been used for years on production lines of leading refrigeration equipment manufacturers. Investigate its many advantages.

which results when the heaters are turned on or off.

The effect of the heaters being on or off carries over past the set temperature and makes the chamber either too hot or too cold. Thus, there is almost continuous cycling about the set point and the chamber is never on "straight-line" control but always a little over or under. Not much over or under, but too much to meet Hughes' particular specifications.

With proportional control, instead of turning the heaters off as the temperature rises above a certain set point and on as it falls below, the heaters continuously turn on and off every four seconds within a control band which extends on both sides of the set point.

The proportional control unit operates in conjunction with on-off controls. By means of a synchronous motor and gear train, the proportional control unit actually moves the on-off control pointer back and forth across the control band once every four seconds.

As the control pointer passes the indicator which regulates actual

chamber temperature, the heaters automatically turn on or off, depending on the direction in which the control pointer is moving.

As an example, if the chamber



temperature is 201 F, the heaters will be off longer than they will be on. They will be turned off when the control pointer moves past 201

F on its way from 202 to 198 F, on a set 2% control band with a 4 degree "width".

The heaters will stay off until the pointer hits 201 F on the return swing. Thus, they remain off longer than they remain on and the temperature approaches the 200 F set point.

The greater the excess temperature, the greater the proportion of "off" to "on" time. The greater the temperature deficiency, the greater proportion of "on" to "off" time.

FIVE APPRENTICES ARE GRADUATED IN S. CALIF.

First formal graduation ceremonies for apprentices in the refrigeration and air conditioning industry in the Southern California area were held in Mayfair Hotel, Los Angeles.

The formal graduation proceedings included a special dinner, speeches and presentation of certificates.

Graduating were: Vern Anthony, Eugene Bates, Charles Chavarria,

1st in Original Design

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Cooling Towers, Inc.

4239 DUNCAN AVE., ST. LOUIS, MO.
Exclusive Builders of the World's
Finest Cooling Towers for 56 Years
FOUNDER MEMBER OF C. T. I.

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Rubbair Door it's FLEXIBLE!

A DOOR OF FIRM,
YET RESILIENT
RUBBER
STRUCTURE THAT
"STANDS UP"
UNDER HARD
USAGE

This Rubbair Door does away with expensive repair, replacement and down-time costs, caused by breakage of wood and metal doors due to constant impact.

Injuries to personnel are practically eliminated because of the resilient Rubbair construction.

For long sustained heavy-duty trouble-free and quiet operation it's RUBBAIR! Get full particulars today.

Stic-Klip MANUFACTURING CO., INC.
50 REGENT STREET • CAMBRIDGE 40 • MASSACHUSETTS

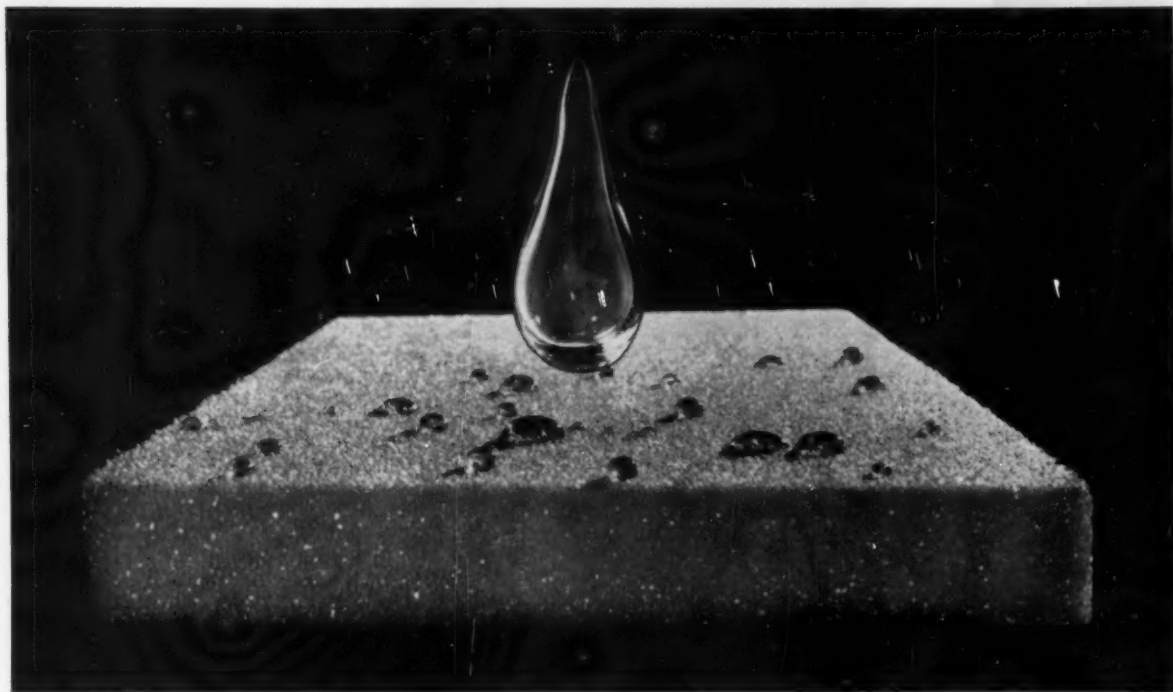
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JANUARY, 1954 • COMMERCIAL REFRIGERATION



STYROFOAM INSULATION RESISTS WATER VAPOR

Styrofoam low-temperature insulation combines strength,
light weight, and gives lower cost per year of service



The Dow Chemical Company
Plastics Department, PL-14868, Midland, Michigan

Please send me your booklet containing information
on Styrofoam, the most nearly perfect low-tempera-
ture insulation material.

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Title

Company

Address

City State

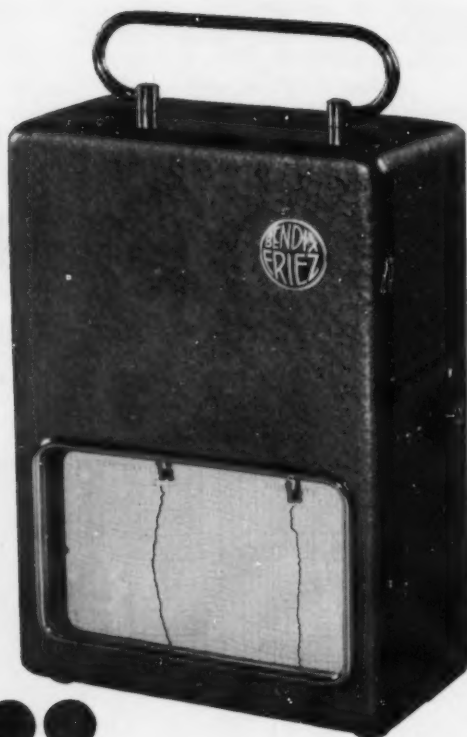
Styrofoam,[®] a lightweight plastic foam made by expanding Dow polystyrene approximately 40 times, is gaining increasing acceptance by refrigeration engineers and insulation contractors. Proved in laboratory tests and field performance to be the most nearly perfect low-temperature insulating material yet developed, Styrofoam is unusually resistant to water vapor. Its composition of non-interconnecting cells serves to resist the passage of moisture.

Styrofoam's low thermal conductivity, ease of fabrication and long service life are other major characteristics that help make this material extremely suitable for your low-temperature insulation applications. Additionally, Styrofoam is odorless, and resists mold, rot and vermin. This strong, yet lightest of all rigid-type insulation materials is available in board form, easily cut to desired size. For full information write for free Styrofoam data booklet. THE DOW CHEMICAL COMPANY, Plastics Department, Midland, Michigan.

you can depend on **DOW PLASTICS**



IF...



you sell . . . install . . . test . . . or service air conditioning . . . this portable recorder of temperature and humidity is of special value.

This precision instrument is as easy to carry as a camera. It records both humidity and temperature on the same chart.

All charts cover a range from 0 to 100% relative humidity. Temperature charts have a Fahrenheit range of 0 degrees to 110 degrees F. or charts are available with a Centigrade range of minus 18 degrees C to plus 43 degrees C. The recorders are built for 10 or 30 hour operation.

Rugged, compact

This is of sturdy design . . . and an instrument of professional accuracy. It is ideally suited for use in small spaces and difficult locations. It is 5 1/4" wide (closed). 8 7/16" high x 3 1/4" deep. Net weight 3 pounds.

Built by Bendix-Friez . . . our 77th year of making precision instruments that set a standard for the world.



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Export Offices

BENDIX INTERNATIONAL DIVISION
205 E. 42nd St. New York 17, N.Y., U.S.A.

Circle No. 45 on Reader Service Card

Jack Heath, and Marvin E. Mahowald.

Management representatives present were W. R. Eby, Neal Templin, William J. Robinson and the executive secretary, chairman of the joint apprenticeship committee.

Representing labor at the ceremonies were E. H. Ballard, William Hardick, Carl Barton, Marvin Foresman and Joseph Simon.

R. Stickel of the Federal Bureau of Apprenticeship, Harold Camp of the State Div. of Apprenticeship Standards, and Harry L. Bowe, Apprenticeship Coordinator, also attended.

RANCO PUBLISHES NEW REPLACEMENT MANUAL

A new Replacement Reference Manual has been published by Ranco, Inc., to replace the manual issued in 1949. Completely revised, the new Manual (No. 1544) lists over 4,636 replacement refrigeration controls.

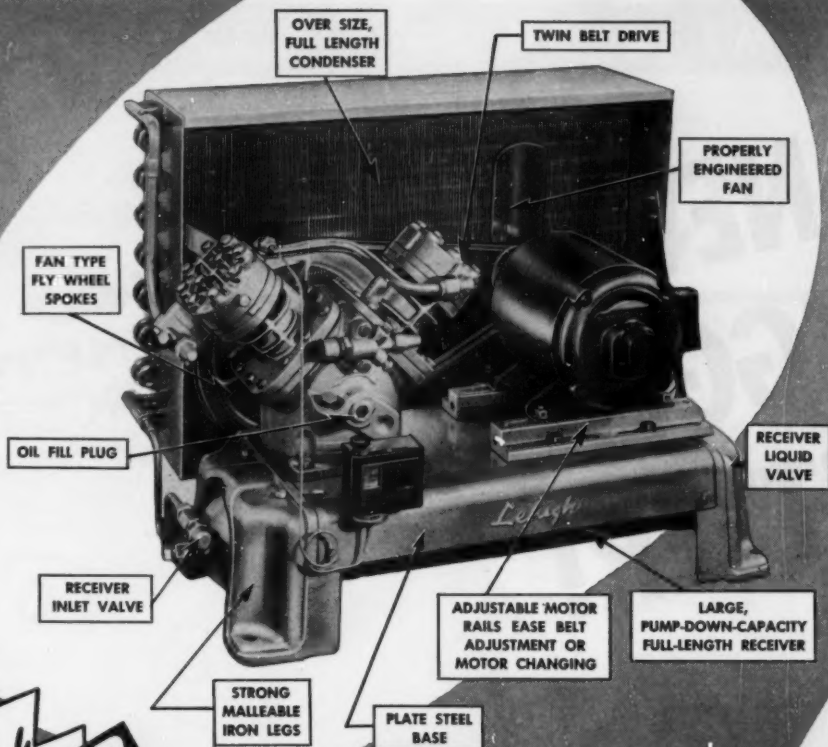
This 150-page manual will be available to refrigeration service men only through their Ranco wholesaler, according to G. E. Graff, sales manager of the firm.

Compiled by C. M. Spielman of Ranco, the manual lists trade names and manufacturers of refrigeration equipment by year and models; manufacturer's part number; Ranco original code number; Ranco exact replacement code number; original mounting bracket hole centers; suggested changes to approach original specifications; original control settings such as cut-out, cut-in and dial knob position, and instructions for resetting control.

MEIER ELECTRIC NAMES EASTERN REPRESENTATIVE

Don Leslie & Co., Wayne, Pa., has been appointed representative throughout the eastern states for Meier Electric & Machine Co., Inc., manufacturers of air moving equipment and propeller blades.

Leslie was formerly vice president and sales manager of Torrington Mfg. Co. Michael J. Fabbri, former eastern sales representative of Torrington, is associated with Leslie in the new organization.



Lehigh
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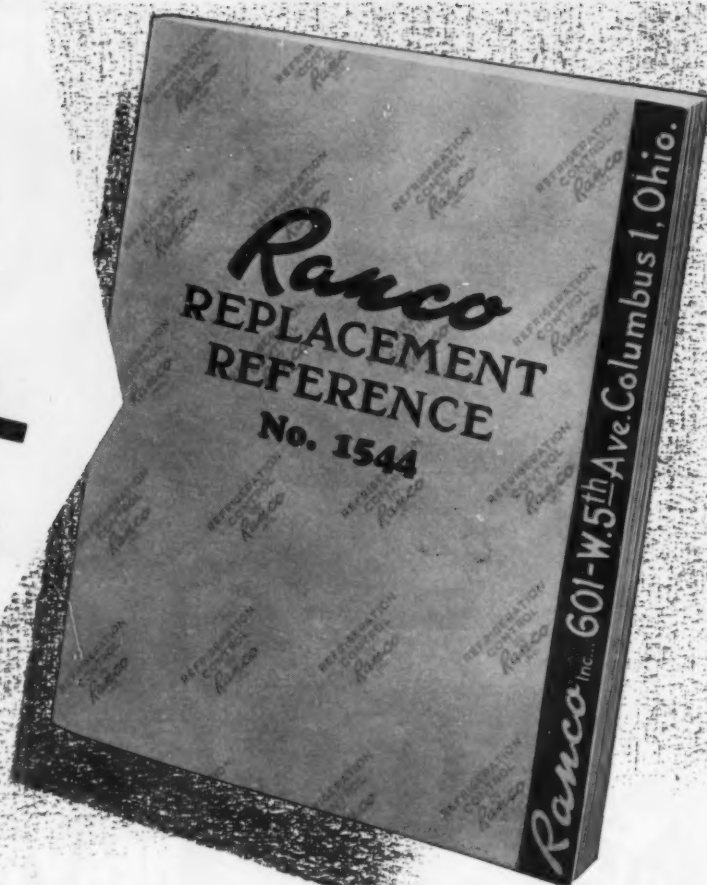
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THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

How To Dehydrate A Sealed System

When a sealed hermetic refrigeration system is opened to the atmosphere for any length of time, for any reason, steps must be taken to evacuate and dehydrate the system so as to leave no traces of air or moisture.

Procedures differ somewhat, depending upon the nature of the work done on the system and upon the length of time it is exposed to the atmosphere. One example, as outlined in a recent issue of Worthington Corp.'s *Climate Chart*, discusses those instances when a system is opened for a short time for the replacement of an expansion valve, strainer, etc.

The recommended procedure is as follows:

(1) The system will have been pumped down and the compressor will not have been exposed in this case. Evacuate with a good grade vacuum pump capable of producing a vacuum at least as low as 0.1" of mercury absolute pressure. Continue this evacuation until 0.1" of mercury absolute pressure is reached, but allow the process to continue for at least one-half hour. Shut off the pump, allow some refrigerant to enter the part of the system just evacuated until atmospheric pressure is reached.

(2) Shut off the refrigerant valve again, start the vacuum pump, and pump out this refrigerant until the 0.1" of mercury absolute pressure is again reached. Close off the system, stop the pump, open the system valves and put the machine into operation.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

I DO IT

THIS
WAY

A LOW pressure control switch installed as an accessory to the compressor control and set to make contact at 1 or 2 pounds over the compressor control will provide a means of closing or opening a circuit upon failure of the compressor to start at its lower cut-in setting.

Where the solenoid-blower relay is separately wired, a blown fuse on the compressor circuit would cause pressure to set off the alarm and also to cut off the solenoid-blower relay so as to prevent evaporator flooding. Thus the machine could be started again without danger of the compressor slugging.

I have used such an arrangement successfully as an alarm device on a three-room, 10 F cold storage warehouse. In this way I am assured of being called by the alarm as soon as automatic operation of the system is interrupted, and I have never had a false alarm.

Wm. B. Hill
Moses Lake, Wash.

Safety Tips On Lifting and Carrying

Do not lift awkward or especially heavy materials by yourself. Get someone to help.

Look over the ground for obstacles and tripping hazards.

Inspect the object you're going to lift for sharp corners, nails, and other things that might cause injury.

Make a trial lift of the object, to determine if you can lift it without strain.

Set your feet solidly, somewhat apart. Sometimes it may be best to get down on one knee.

Crouch as close to the load as possible. Do not get into a full squat, but bend your legs slightly.

Keep your back straight, but bend at the hips so you are over the load. The object is to do the work with your leg muscles and not with the weaker back muscles.

Get a firm grip on the object, hands on diagonal corners. If necessary, lift one end slightly to get a hand under it.

To lift, straighten your legs and swing your back into a vertical position.

In setting objects down, bend your legs and the trunk of your body at the waist. The purpose again is to make the leg muscles, and not the back muscles, do the work. Keeping the legs straight and arching the back to set something down can result in a back injury.

Gloves, apron, and steel-toe shoes should be worn when handling materials. When removing nails or steel strapping cup goggles or a face shield should be worn.

To change the position of a load when carrying, rest it against something for support. Do not try to adjust your grip while you support it—the object may fall or cause you to strain yourself.

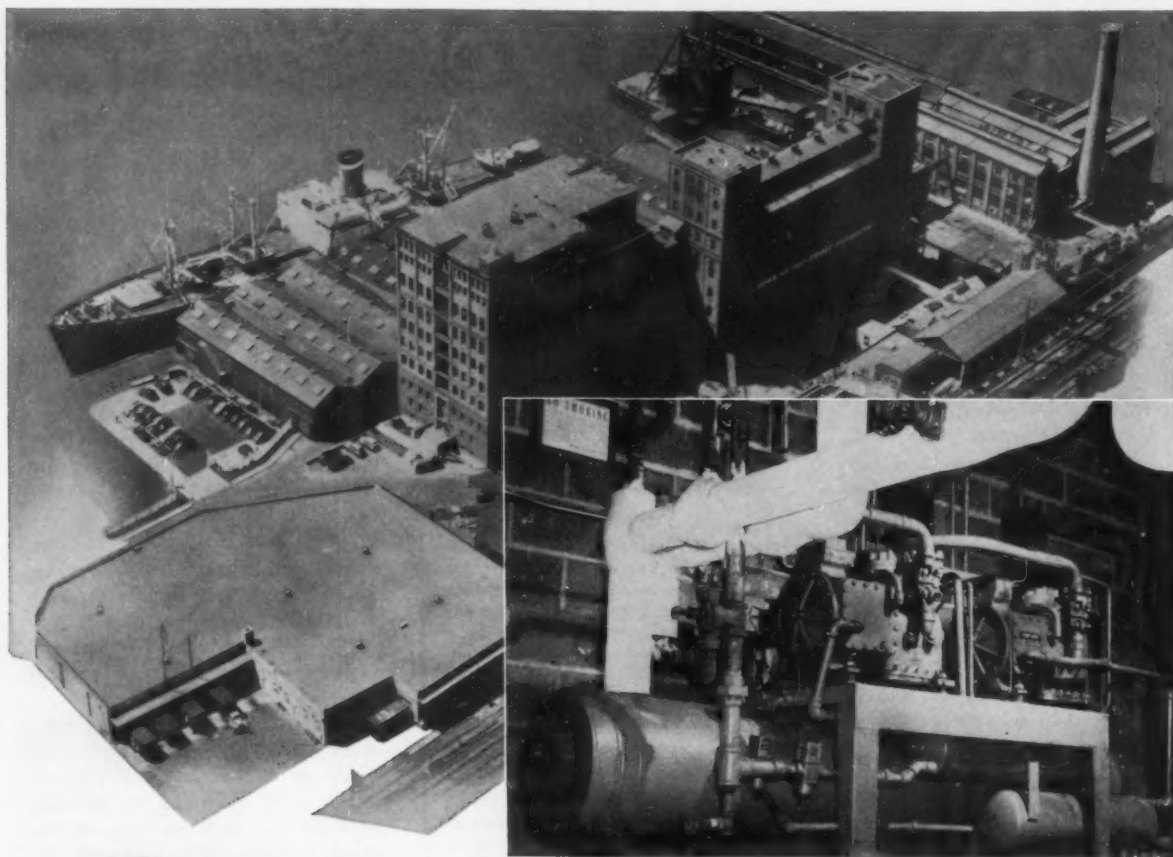
When two or more men are carrying an object, only one man should give instructions. The men should decide beforehand what route they are going to take and should understand clearly how the object is to be handled. The men should keep in step and have signals for changing directions, stopping, putting the objects down, and so on.

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MARCH OF DIMES

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Acme FLOW COLD[®] used in processing life-saving blood plasma substitute...

DEXTRAN, a blood plasma substitute, is manufactured by the Dextran Corp. of Yonkers, N. Y., a subsidiary of Refined Syrups & Sugars, Inc. Used effectively in Korea, this miracle product can be made in unlimited quantities, requires no special storage or shipping precautions, obviates the need for blood typing, and eliminates the danger of transmitting liver ailments. Its cost is only one-fourth that of plasma.

Since May, 1951, an Acme Flow-Cold Packaged Liquid Chiller has been used in the processing of

Dextran. Its function is to cool the solution at one phase of the process. A 15 HP Flow-Cold is used and furnishes 60 GPM of 40° water.

The Flow-Cold was specified for the job by Abraham Abrams, Consulting Engineer of New Rochelle, N. Y. Its compact size, peak efficiency, and ease of installation and maintenance made it a natural for this job. But this is only one example of the many uses to which the Acme Flow-Cold may be put. It is possible that this small, compact, sturdy unit can help you solve a troublesome temperature control problem. Write for information.



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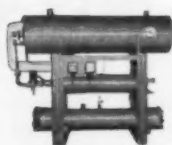
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Floor-type Unit Coolers



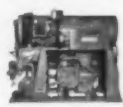
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Liquid Chillers
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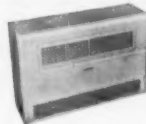
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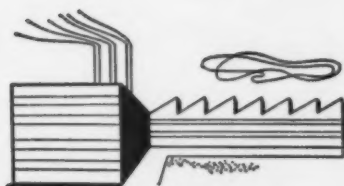
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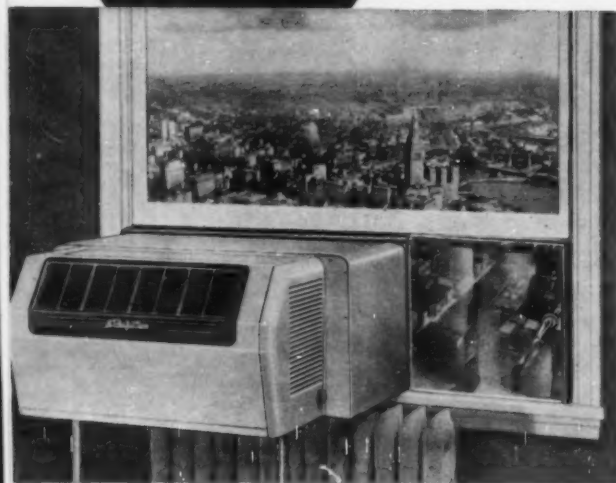
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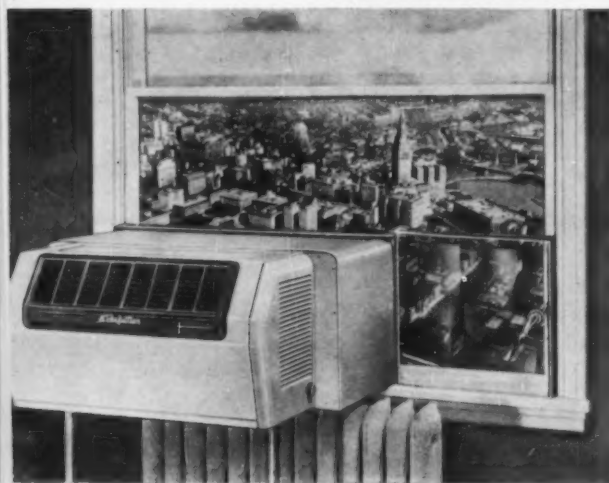
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- Local Perfection Promotion Plan gets you ready-to-buy prospects at low cost.
- No winter storage problem. Window closes behind the unit.

The new Perfection Room Air Conditioner shown here is the answer to cracking the profitable multi-unit installations for office buildings, hotels, motels, hospitals. It has been successfully field-tested—and sales-tested—in major office buildings and hospitals. It will be backed up by a strong advertising program.

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NOISE REDUCTION

in air conditioning

THE increased use of "comfort air conditioning" has greatly emphasized the requirements for low noise level installation. Some of the major factors which have brought about the need for special attention to noise level are:

1. The increased value of basement space, causing the system to be installed in or adjacent to the conditioned area.
2. The increased use of evaporative condensers due to water restrictions and cost of water.
3. The increased use of air conditioning in office buildings, apartment houses, and other locations where noise is a critical factor.
4. The trend to high speed compressors.

The problem of noise level is not restricted to any particular type of installation, an engineer of Worthington Corp. points out in a discussion in that company's *Climate Chart* publication, but ranges from room coolers through central station installations.

Each type of installation creates its own special problem, he explains, but the same general principles are involved in reducing the noise to an acceptable level for all types. Generally speaking, the reduction of noise level is accomplished either through isolation of the unit or by dampening out the vibration.

When basement space is the least valuable location in a building, it is possible to install the equipment in the basement away from the conditioned area. This

location permits a greater tolerance to noise and vibration.

In many installations, however, such as large department stores, for instance the basement valuation, with respect to sales volume per square foot, is too great to permit location of the equipment in this space. When this condition exists, it is necessary to install the equipment on one of the upper floors.

The location of the equipment adjacent to or in the conditioned area decreases the tolerance to noise and introduces new problems in the elimination of vibration.

When a central station installation is in the basement, the compressor vibration can be reduced by using a massive concrete base. The best results are obtained with an island type base, the compressor being bolted directly to a massive block of concrete which is isolated from the building by cork.

The mass of the base dampens out the vibration, and the cork prevents the transmittal of any vibration to the building. The weight of the base should be two or three times the weight of the unit.

In the upper floor installations, where this massive base is prohibited, the compressor should be mounted on vibration eliminator rails. When using this type of base, it is necessary to use flexible connections in the power lines. Flexible connections must also be

Continued on page 96



Air Conditioning Sells Houses



SOLD BEFORE COMPLETION were all 60 of these homes in the Desert Gardens development in El Centro, Calif. The reason? Air conditioning assures maximum comfort in all parts of the house, even when outside temperatures run as high as 110 F.

THIS article points up the fact that air conditioning can be a powerful merchandising tool for the home builder. Subsequent articles will show how importantly the air conditioning dealer and contractor figures in the sale of air conditioned homes by helping the builder capitalize to the fullest extent on the public's increasing interest in residential air conditioning.

BUILDER AND CONTRACTOR check one of the installations. Builder Bob Roberts (left) looks over the cooling tower while Jerry Sumrall, cooling contractor stands by the air conditioner. All equipment is located in the attached garage.



RESIDENTIAL air conditioning can be a real selling tool for the commercial home builder. If any doubts on this point remain, they should be completely dispelled by the experience of the Desert Gardens in El Centro, Calif.

Here was a real estate development consisting of 60 three-bedroom houses. Each house was priced at approximately \$11,300, but — and this is the interesting point — when it became known that these houses would be air conditioned, *all 60 were sold before completion!*

California's Imperial Valley, in which El Centro is located, is noted for its hot weather. The houses in Desert Gardens are insulated with rockboard and aluminum foil, but with outside temperatures commonly running as high as 110 F, insulation alone is not enough to insure maximum comfort in the house. Air conditioning was the obvious answer.

Water in the Imperial Valley, however, is not so plentiful that it can be wasted, so the builder realized that any air conditioning system employed would have to be economical in its water usage. The answer was found in the combination of Lipman residential air conditioners with Supreme cooling towers.

The air conditioner used in each of the 60 homes was a 3-hp unit operating on 220-volt, 60-cycle current. The cooling tower was a 3½-

ton induced draft model. These two units seemed to fit the weather and construction conditions perfectly.

Each of the homes has an attached garage, and the units are installed in the garage area to eliminate any exterior ductwork. Even though all ductwork is inside the dwelling, however, it is protected with glass fiber insulation.

Garage Houses Equipment

The ductwork for the air conditioning system runs from the garage to the attic, with branch ducts running from that point to outlets in each room. All return air is taken from the living room.

The system is designed with controls to hold the temperature inside the house at about 80 F., even when outside temperature is running as high as 110 F.

Only maintenance problem left to the home owner is that of keeping the cooling tower clean by draining it at regular intervals. The drain is readily accessible, so that this task presents no problem. As the water is heavily alkaline, a water treatment service is supplied to those home owners who desire it. With this treatment, it is only necessary to drain the cooling tower about once a month.

Free Service Provided

A year's free service on the air conditioning system was provided each home owner by the cooling contractor who installed the equipment, Sumrall Refrigeration Co. of Pomona, Calif.

Builder and general contractor for the development was Roberts Builders of San Bernardino. Air conditioning equipment was supplied through Strange & Lagos, Los Angeles, Lipman representatives on the West Coast.

The success of the Desert Gardens installation has demonstrated once again that an important advantage to both the contractor and the home buyer of having an air conditioning system installed as part of the original equipment of a house is that the financing is included in the purchase price. Thus the buyer does not have a separate financing problem to face, and the cost of the installation is spread out over the same length of time as the mortgage.



THESE SEEING-EYE watchdogs, atop the Los Angeles Statler hotel, "see" the sun's heat rays and vary the cooling capacity of the building's central station year-round air conditioning system to match the weather.

Roof-Top Watchdogs

EIGHT roof-top watchdogs on the penthouse of the Los Angeles Statler Center hotel and office building "see" the heat of the sun's rays and translate what they see into immediate action.

The "solar seeing-eye dogs" are set with the single sensitive eye of each of them staring in a different direction so that as the angle and intensity of the sun's rays change throughout the day, the instruments automatically vary the cooling capacities of the air conditioning inside the building.

The entire Carrier conduit "Weathermaker" air conditioning system for the 16-floor, Y-shaped building is under the overall control of these sensitive instruments. The direction in which the units face corresponds to one of the major exposures of the building's five wings.

In addition to the central watchdog control, the 1,300 guest rooms and 150,000 sq. ft. of commercial offices are equipped with individual controls so that each occupant can dial whatever weather he chooses. Total cooling capacity of the three Carrier centrifugal refrigerating machines located in the basement is 22,000 tons. Over 12 miles of conduit are used to distribute conditioned air through the building.

A total of 60 fans ranging in size from 1 to 7' in diameter sends nearly 680,000 cu. ft. of conditioned air through the building every minute. The air conditioning system includes four floors of shops, lobby areas, dining and ballroom facilities, and administrative areas covering almost the entire block beneath the guest room and office rooms.

Minimum consumption of water for refrigeration condensing is insured by continuously recirculating all water used through an array of forced draft cooling towers cleverly concealed on the roof.

Cooling towers and central station air conditioning equipment are housed in specially constructed penthouses with walls which appear to be solid but permit free passage of the outside air to the equipment.

PNEUMATIC CONTROL

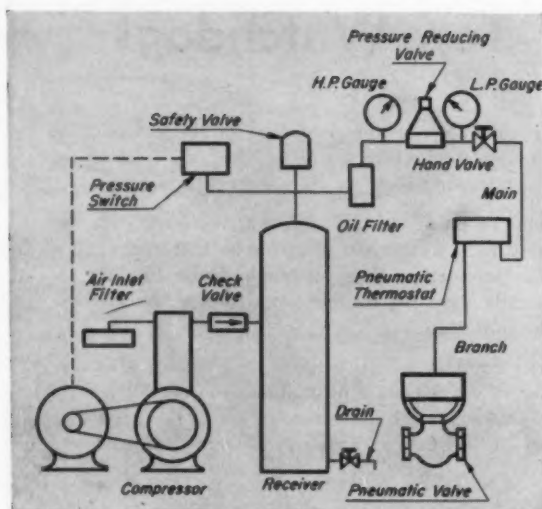


FIG. 1: Pneumatic control air supply.

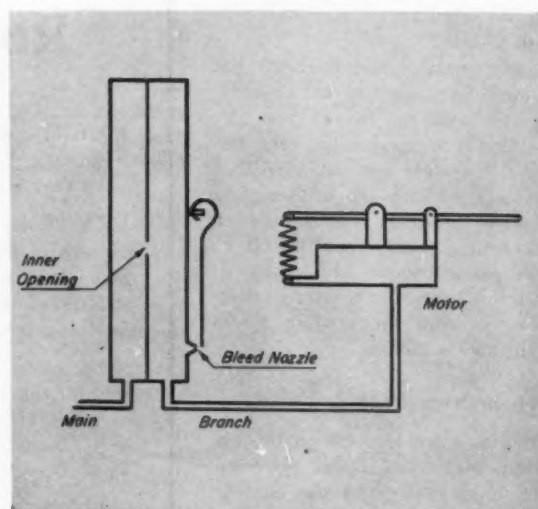


FIG. 2: Bleed type controller.

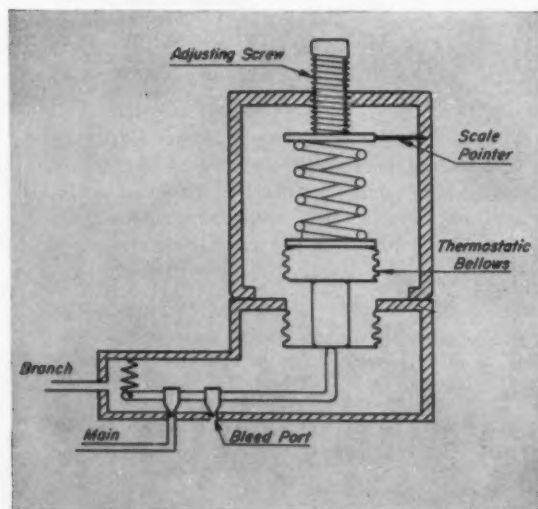


FIG. 3: Non-bleed controller.

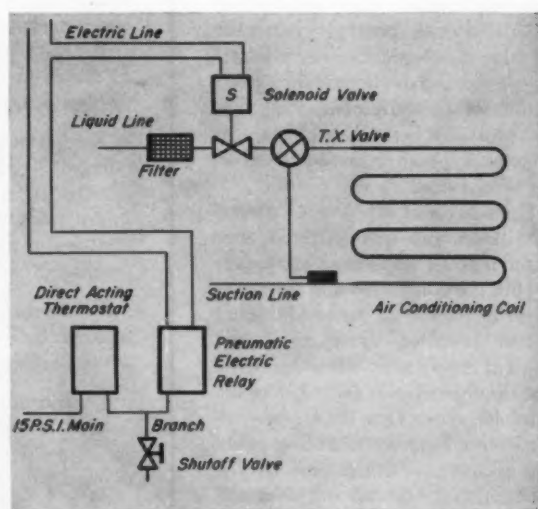


FIG. 4: Combination control for refrigeration.

This is the second of three articles by Mr. Dowis on air conditioning controls. Last month he discussed automatic control; next month's article will cover control installations for year-around systems.

for air conditioning installations

Pneumatic controls are simple, reliable, and easy to install. They are widely used for heating, cooling, and ventilation systems. Here are some pointers on their application, installation, and service.

by Edward Dowis

PNEUMATIC controls have been in common use with larger heating installations for many years. It is natural, with the advent of all year air conditioning, that the same system should be used to control cooling and air distribution.

Most pneumatic controls operate at air pressure of about 15 pounds per square inch. The air may be taken from any clean compressed air supply, reduced to the proper pressure; or, a relatively simple

independent supply may be installed with the equipment.

The air supply system consists of a motor and compressor (usually low speed), a storage tank, oil filter, pressure reducing valve, pressure switch and the necessary valves, gauges, piping, etc.

Due to the very small openings through which the air passes, it must be strictly clean and free from oil and condensable moisture. The air may be compressed to 70 psi or higher, which will permit some of the moisture to fall to the bottom

of the receiver as the temperature is reduced. This prevents the condensation of water in the air lines, which would prevent proper operation of the controls.

Figure 1 shows the piping arrangement of a typical air supply system and the connection to one thermostat and a pneumatic valve. Each controller has one connection to the main and one to a branch connected to the valve, damper or other device being operated.

Any number of devices may be connected to a branch and all con-

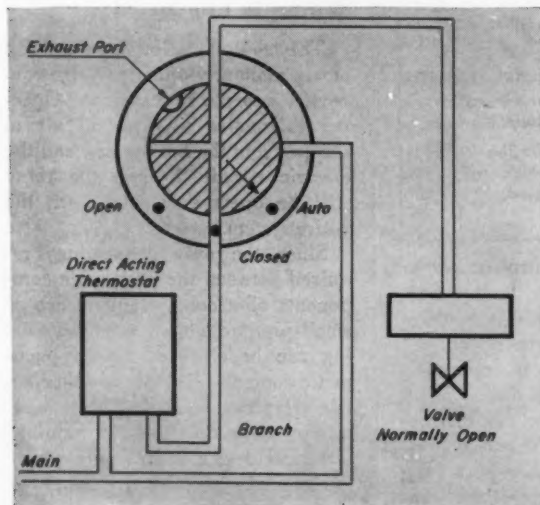


FIG. 5: Three-position controller.

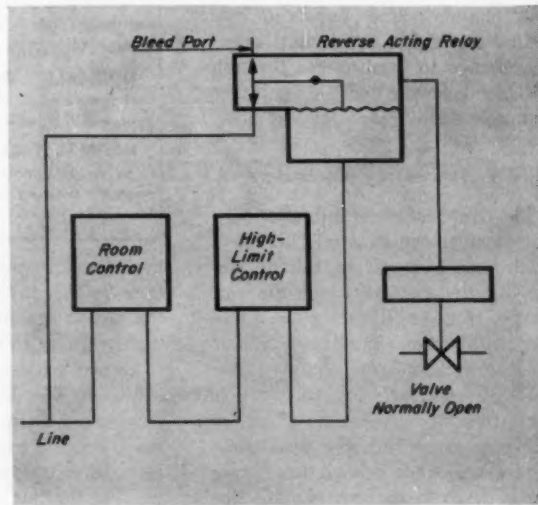


FIG. 6: Room and high limit control.

trolled simultaneously. Any number of controllers may be connected to the main, each with a branch connected to the device to be operated.

Pneumatic controls require very little air, but the supply equipment must be sufficient for the required number of devices.

The most commonly used controllers are for temperature, humidity and pressure regulation. They may be mounted in rooms, or the sensitive elements in ducts. All pressures usually encountered, including static, may be controlled.

Two Types of Controllers

The purpose of the controller is to receive air from the main and deliver it at a reduced pressure determined by the conditions being controlled. In Figure 1 the valve may control the flow of chilled water to a cooling coil. As the temperature tends to rise, more pressure is passed to the branch and the valve opened wider. As temperature falls, the action is reversed.

Pneumatic controllers fall into two general classifications:

- (1) Bleed type, in which air escapes through a small orifice at a variable rate, determining the pressure in the branch line.
- (2) Non-bleed type, in which pressure variation is obtained without the constant escape of air.

The bleed type controller is illustrated in Figure 2. Air is maintained at main line pressure in the first chamber and passes to the second through a very small opening, thence to atmosphere through the bleed nozzle, which is larger than the opening to this chamber.

Here's How They Operate

The temperature or humidity control element causes a reed to move toward or away from the nozzle, varying the rate at which air can escape, thus regulating the pressure within the chamber to which the branch line is connected.

With the nozzle closed, branch line pressure will be the same as line pressure. With the reed completely removed, branch line pressure will drop to zero gauge. Between these two extremes, the branch

line pressure is determined by the position of the reed. This variation in pressure operates the damper or valve through a bellows, diaphragm or piston type motor.

The pressure in the escape nozzle chamber may operate the controlled device through pilot valves con-

CONTROLLER TERMINOLOGY

SCALE RANGE: This is the minimum and maximum setting to which the controller can be set. It will be expressed in degrees for temperature controllers, percentage for humidity controllers and ounces, pounds or inches for pressure controllers. A thermostat with a scale range of 70 to 90 can be set for any temperature between these two limits.

PRESSURE RANGE: This indicates the upper and lower limits of air pressure which the controller will produce in the branch line. It may be from zero to main line pressure, usually about 15 pounds.

THROTTLING RANGE: This is the number of degrees, pounds or humidity percentage points change, which will operate the controller through its pressure range or a specified range, such as 3 lbs. to 13 lbs. The throttling range is usually adjustable. With a pressure range of 3 to 13 lbs., throttling range set at 4°, and the controller at 80°, the minimum pressure of 3 lbs. would be exerted at 78° and the maximum 13 lbs. at 82°. Between these temperatures, the pressure would be proportional to the temperature.

DIRECT ACTING: This designates a controller in which a rise in temperature, pressure or humidity causes an increase in branch line pressure.

REVERSE ACTING: This describes a controller in which rise in temperature, pressure or humidity causes a decrease in branch line pressure. Many controllers can be adjusted to be either direct or reverse acting.

NORMALLY OPEN: This indicates that the valve or damper will assume an open position when pressure is released.

NORMALLY CLOSED: This indicates a valve or damper which will close when air pressure is released.

tained within the controller, rather than by direct action. In this way, the motor can be made to respond more rapidly to the controller.

Figure 3 illustrates the operation of a non-bleed controller. When the temperature rises, the thermostatic bellows exerts increased pressure, opening the main port long enough for air to enter the controller chamber and balance the

pressure of the thermostatic bellows. When temperature decreases, the compression spring opens the bleed port, permitting the escape of just enough air to balance at the new pressure.

In this way, air is bled only when the motor is changing position. As usually constructed, the bellows operates the port valves through linkage which permits precise adjustment.

Combination Circuits Used

Two or more controllers may be required to produce desired results. A typical example is the use of a pneumatic thermostat, a pneumatic electric relay, a manual and a solenoid valve to control the operation of a direct expansion air conditioning coil. Such a circuit is shown in Figure 4.

The thermostat, set for direct acting, closes the relay switch by increasing branch line pressure and opens the solenoid, permitting liquid to enter the coil. As soon as the thermostat is satisfied, it will reduce branch line pressure and open the relay switch, permitting the solenoid to close. The condensing unit would cycle by a conventional low pressure control.

The pneumatic electric relay is a pressure switch operated by control air pressure. Single pole, double throw switch action permits it to be connected to close or open on either increase or decrease in pressure, or to close one circuit as another is opened.

Wiring Is Eliminated

The shutoff valve is simply a small, manually operated valve connected into the branch line. Opening this valve will permit air to escape from the branch line and the electric circuit through the relay will be opened, closing down the entire system.

Since the only connections required between the pneumatic components of a control system are of small pipe or tubing, extensive wiring can be eliminated with pneumatic controls. The pneumatic electric relay can be located anywhere, usually near the solenoid or other electrical device being operated.

Pneumatic switches are made for

Continued on page 81

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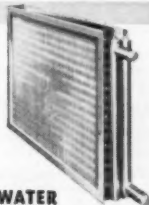
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Below: This Duncan Hines Approved Restaurant at Arlington, Va., Uses Two Frick Unit Conditioners.





Remington "Bedfellow"
—1/2 h.p. deluxe. The
most popular size bed-
room unit in America.

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The most complete line in the industry—
Built by the *only* specialists in room air con-
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Check these outstanding Remington features:

Climate Compensator for even balance between cooling and dehumidifying, *Strato-flo Grilles* for draft-free cooling, *Positive Ventilation*, *Pressurized Exhaust*, *Automatic Thermostat*, *Airflo Fresh'ner*, *Optional Heating*. Decorator-designed, finished in Mist Green with Antique Ivory or Cascade Green Grille.

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... by the roomful



DIVISION OF REMINGTON CORPORATION

13-4 Willey Street, Auburn, N. Y., U. S. A.

Circle No. 52 on Reader Service Card

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

BACK DRAFT DAMPERS for high or low velocity air applications are described and illustrated in a 4-page brochure presented by Rittling Corp. The release contains illustrations and drawings which show how these dampers with non-metallic blades fit various applications in all types of ventilating and air conditioning systems.

Circle No. 101 on Reader Service Card

DESIGN DATA and laboratory tests on the use of plenums above "Acusti-Luminous" ceilings are given in a 15-page brochure presented by Luminous Ceilings, Inc. Such questions as "How to figure air distribution for ceilings", "What are the thermodynamics of air flow through the plenum where a good proportion of the sensible load appears to be concentrated", and other typical questions are answered with the information contained in this complete pamphlet.

Circle No. 102 on Reader Service Card

PIPE INSULATION data on "Foamglas" cellular glass insulation is presented in a 4-page booklet by Pittsburgh Corning Corp. Photographs show installation for both hot and cold piping applications. Application procedures are shown and physical properties of this type insulation are listed. Also illustrated are fitting covers for all screwed, sweat, welded, and flanged fittings and valves which are available from the factory.

Circle No. 103 on Reader Service Card

ELECTRONIC CONTROLS for heating, ventilating and air conditioning applications are described and illustrated in an 8-page catalog presented by Barber-Coleman Co. Contained in catalog F6166 are descriptions of the ultra sensitive micro-relay and of the various elements required for system application. Multiple element systems are described and electrical connections are diagrammed.

Circle No. 104 on Reader Service Card

A CUT-AWAY DRAWING of the "Paraflo" principle of heat transfer is featured in bulletin No. 550, available from Dravo Corp. This bulletin covers all pertinent features of the Paraflo space heater, including engineering data and three elevation and dimension drawings. Flexibility of application is illustrated. Gas-fired unit heaters and gas or oil "Counterflo" space heaters are also described.

Circle No. 105 on Reader Service Card

INSULATION of metal buildings with "Super-fine" blanket form of glass fiber insulating material is covered in a descriptive folder presented by Libbey-Owens-Ford Glass Co., Fiber-Glass Div. The folder shows pictorially three standard methods for applying insulation for combined heat and noise control in industrial and commercial structures. The folder also contains a complete standard data chart, charts on sound absorption, and data on thermal conductivity.

Circle No. 106 on Reader Service Card

TEMPERATURE CONTROL of buildings from outdoors is the topic discussed in one of three bulletins which describe the "Weather-flo" regulator. The other two bulletins describe application of the control unit to hot water heating and its application to warm air heating installations. These bulletins, presented by Automatic Devices Co., Inc., contain explanations of how the regulator operates, diagrams, illustrating control settings, installation drawings and complete specifications.

Circle No. 107 on Reader Service Card

ELECTRONIC CONTROLLERS as additions to the firm's series 500 line of instruments are discussed in a 16-page bulletin, No. B226, available from Bristol Co. Included in this bulletin is information on the frequency modulation principle of the control unit, plus data on the combinations of indicators or recording pens and control units available, examples of applications, and complete engineering specifications. These instruments are available as indicating or recording controllers for temperature, pressure, liquid level, humidity and time program.

Circle No. 108 on Reader Service Card

VIBRATION ISOLATION for a wide variety of equipment through properly engineered application of Armstrong's "Vibracork" is described in a new bulletin, VC-501, available from Korfund Co., Inc. Deflection curves, physical properties, and methods of installation with typical drawings are included in the bulletin. A partial list of 24 typical examples of equipment successfully isolated with Vibracork is included.

Circle No. 109 on Reader Service Card

(Turn to page 82 for more Useful Literature)

NEED

heavy duty, large capacity water level controls? Maid-O'-Mist's No. 6900 series float control diaphragm valves are especially designed for air conditioning equipment, evaporative coolers, air washers, etc., and will accurately control water at any level. Water can be discharged upward or downward as specified.

WATER LINE FLOAT CONTROL VALVES



- ✓ CAPACITIES:
1 1/4 gals. to
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TAPPING
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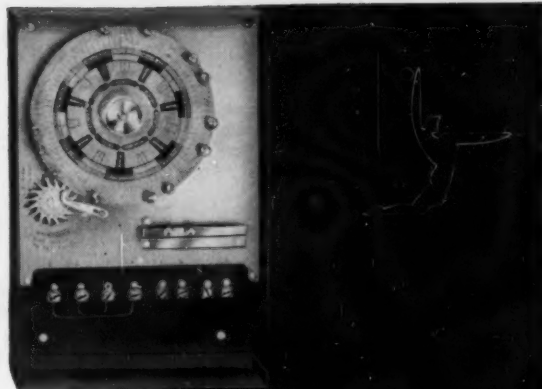
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Circle No. 54 on Reader Service Card
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dial time
switches provide
individual
program
settings for each
day in week.

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dependable
defrosting time
switches

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Dependable, accurate defrosting is vital to good performance. That's why, for original equipment or for replacement, growing numbers of top-flight designers and service engineers demand Paragon defrosting time switches. That's why 96% of the commercial refrigeration manufacturers using automatic defrosting specify Paragon as standard equipment.

300-MB Series Time Switches for compressor shut-down, electric heater defrosting, hot gas or reverse cycle applications.

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Refrigerator
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can be used
with all
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of dry type
coolers —
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Time/Pressure Switches

Water Spray
Controls

**PARAGON
ELECTRIC COMPANY**
TWO RIVERS, WISCONSIN
World's largest exclusive
manufacturer of time controls

Circle No. 53 on Reader Service Card

WHAT'S NEW...

in Air Conditioning Equipment

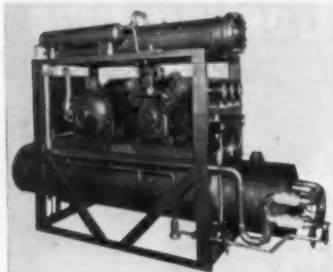
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

(For more NEW PRODUCTS turn to page 85)

Packaged Chillers

Product: Line of packaged water chillers.

Manufacturer: Schnacke, Inc., Evansville, Ind.



Features: Units include compressor, chiller, water-cooled condenser, all controls, starter, piping, etc., completely assembled and ready to start with the connection of power, condenser water and chilled water lines. Illustrated 20-hp chiller is an example of units available in 6 to 60-hp sizes. Packaged unit eliminates field labor costs.

Circle No. 131 on Reader Service Card

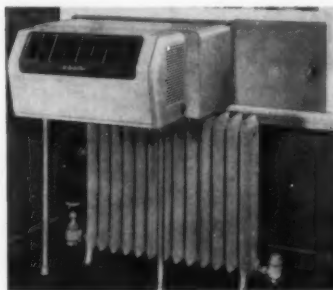
Room Conditioners

Product: Room air conditioners with a portable utility cart.

Manufacturer: Perfection Stove Co., Cleveland, Ohio.

Features: Portable cart enables movement of conditioner into a permanently-installed weather cabinet. Weather cabinets can be installed in every room of a hotel, hospital or other building and the air conditioning units are then brought in to only those rooms which require conditioning. Completely air-cooled, units need no plumbing, no extra wiring. Conditioners slide into

weather cabinet in a bureau-drawer fashion. All Perfection $\frac{1}{2}$, $\frac{3}{4}$, and 1-hp units fit into the same weather cabinet; all use same size filter. Automatic year-round units both cool and heat. Winter storage and window washing problems eliminated. Conditioners designed so entire unit is installed inside window



pane; window can be completely closed behind unit. Four adjustable grilles direct air flow.

Circle No. 49 on Reader Service Card

Air Conditioners

Product: Four model line of room air conditioners.

Manufacturer: Coolerator Co., Duluth, Minn.

Features: Produced in $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1-hp sizes, room coolers offer as standard equipment an automatic thermostat for control of desired room temperature day or night. Units have no side vents, no control knobs or other mechanisms on top to interfere with venetian blinds or curtains. Cabinets will fit into 24" windows or larger. Permanent type filters are easy to clean and replace. Ultra-high velocity discharge sends cool, filtered air directly to ceiling.

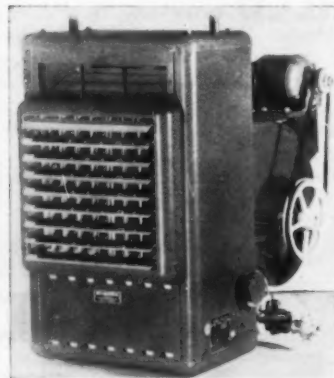
Circle No. 133 on Reader Service Card

Unit Heater

Product: Blower type gas unit heater.

Manufacturer: Hastings Air Control, Inc., Omaha, Neb.

Features: Unit contains long-life aluminized steel heat exchangers, dual-directional air distribution louvers, electrically welded tubes and combustion chamber. Also featured in the unit are stainless steel ribbon burners, cushion mounted blower motor with thermal overload protection, standard Minneapolis-Honeywell controls, and a draft hood built into the



heater to prevent chimney backdraft or excessive suction. Heater is designed for use with natural, manufactured, or LP gases. Models are available from 75,000 to 200,000 Btu input capacity.

Circle No. 134 on Reader Service Card

Air Conditioners

Product: Double-duty "Mor-Sun" air conditioners.

Manufacturer: Morrison Steel Products, Inc., Buffalo, N. Y.

Features: Designed to complement the line of Mor-Sun automatic forced warm air furnaces, units are for either commercial floor use or for residential central cooling ap-

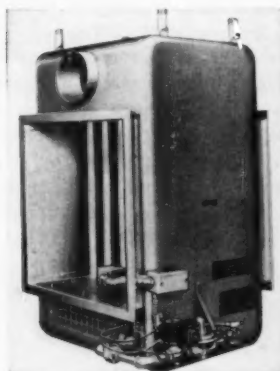


plications. Units are available in 2 and 3-ton capacities. Both sizes use only 24 $\frac{3}{8}$ x 22" floor space. Each is 60 $\frac{3}{4}$ " high. Entire unit can be serviced quickly and easily by removing the front panel of the cabinet. Hermetically sealed units use Freon refrigerant, are equipped with 15 x 24" replaceable air filter. Circle No. 135 on Reader Service Card

Duct Heaters

Product: Series 23A-DU gas fired unit heaters in 12 models.

Manufacturer: United States Air Conditioning Corp., Minneapolis, Minn.



Features: Units range from 65,000 to 500,000 Btu/hr input capacity, will burn all types of gas. Duct heaters designed for installations where air is circulated by an independently located blower. A rectangular duct flange for simple connection to inlet and outlet ducts is standard equipment. Burners do

not depend on remote fan for air. Variation in fan speed will not affect burner operation. Built-in draft diverter allows installation of unit 6" from ceiling or walls. Controls can be wired to operate either simultaneously with blower motor so gas supply is turned on and off as blower is started and stopped, or may be controlled by a thermostat located in the leaving air duct.

Circle No. 136 on Reader Service Card

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

Evaporative Condenser

Product: "Aqua-Fog" evaporative condenser.

Manufacturer: Coleman Co., Inc., Wichita, Kan.

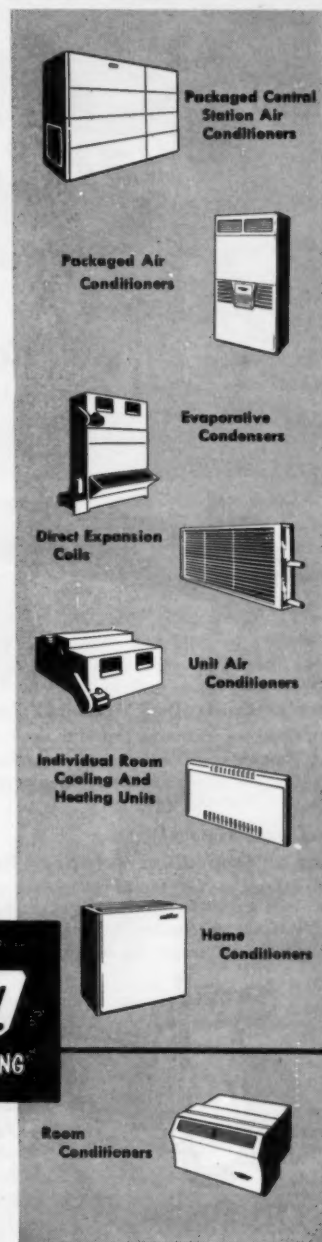
Features: Units available in 2, 3, and 5-ton sizes. Split coil circuits to meet commercial refrigeration requirements are also available. Heat transfer accomplished by enveloping condenser coil in a heavy mist. Mist is created by a turbulator unit consisting of a small sealed motor and two direct-mounted wheels which revolve at high speed in the

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manufacturers of a
complete line of
refrigerated air
conditioning
equipment
for jobs you can be
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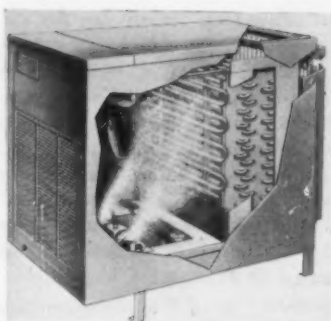
Address Inquiries to: Dept. CR 14



UNITED STATES AIR CONDITIONING CORPORATION
MINNEAPOLIS 14, MINNESOTA



water sump. Revolution of the wheels, grooved and drilled to produce fine mist and heavy wash spray, flings the water onto the coil surface. No nozzles, pumps or belts required. Four-blade pressure-type fan mounted above and behind turbulator forces air over wet coil to complete transfer. Heavy wash spray prevents formation of scale on coil. Amount of make-up water required for efficient operation is less than 3 gal. per ton of refrigeration per hour. Make-up water is controlled by mechanically-actuated



float valve. Water bleed cone removes buoyant debris and prevents

excessive mineralization. Eliminator section attached to the outlet grille removes excess water from airstream and returns it to the pan. Overall dimensions are the same for all three sizes. Height is about 34"; width about 24" and length about 41".

Circle No. 137 on Reader Service Card

Air Conditioner

Product: Packaged year round air conditioner.

Manufacturer: Frigidaire Div., General Motors Corp., Dayton, Ohio.

Features: Unit offers gas or oil heating, with non-clogging burner



mechanism. Heating capacity with oil is 75,000 Btu/hr output and with gas, 90,000 Btu/hr input. Cooling and dehumidification are provided by an automatic electric refrigeration system with 3-ton cooling capacity. Designed to cool and heat homes of 5 or 6 rooms, unit measures 76" high with plenum, 46" wide, and 25" deep. Designed to operate in a small closet-type enclosure, basement or utility room. Unit is enclosed in a gray enameled steel cabinet.

Circle No. 138 on Reader Service Card

Air Conditioners

Product: Model 581 duct air conditioner.

Manufacturer: Bryant Heater Div., Affiliated Gas Equipment, Inc., Cleveland, Ohio.

Features: Compact, light weight duct conditioner is available in 2 and 3-ton sizes. It is equipped with a complete hermetic system. Designed for installation in attic, base-

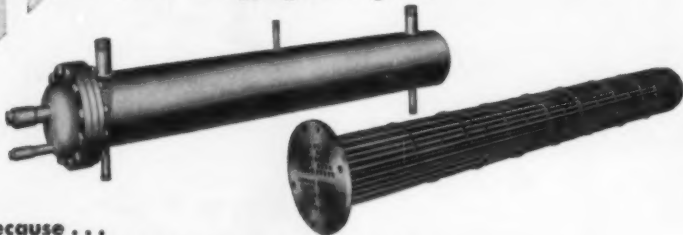
BETTER COOLING

with

Taco

"CONTROLLED VELOCITY" CHILLERS

1. Improved heat transfer
2. Rapid response to Thermal Expansion Valve
3. No oil logging and slop over



Because . . .

Taco's "Controlled Velocity" Tube Bundles . . .

Carry *all* incoming liquid to the top of the Chiller in the first pass.
Provide constant forward movement of *all* refrigerant and oil.
Prevent accumulation of liquid (refrigerant or oil) in any part of the Chiller.

And because . . .

Taco's "Controlled Velocity" Heads . . .

Agitate oil and liquid refrigerant, at each head pass, with a constant stream of expanding gas.
Provide unretarded flow of refrigerant.
Eliminate "traps" for oil and liquid refrigerant.



For full information and Taco's "pin-point" Selection Charts, write for Bulletin CWF.

137 SOUTH STREET

PROVIDENCE 3, R. I.

Circle No. 58 on Reader Service Card

ment, or crawl space locations, unit is only 22" wide. The company also is offering a completely redesigned room air conditioner having a discharge grille permitting 360° air



control. Operating controls providing 4 separate adjustments of room climate are concealed beneath a small door on top of the cabinet. Overhang into room is only 3½". Hermetically sealed unit has a large condenser coil and double and triple row cooling coils for maximum cooling area.

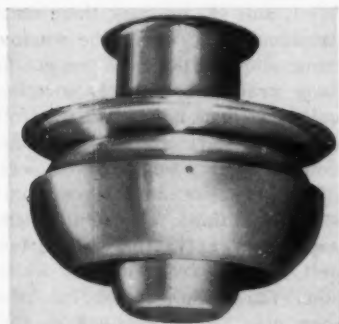
Circle No. 139 on Reader Service Card

Ventilators

Product: Spun aluminum blower ventilators.

Manufacturer: Loren Cook Co., Berea, Ohio.

Features: Sold as a complete assembly, units are designed for residential and commercial uses. Illustrated Model W wall exhaust ventilator is adjustable to any wall thickness from 5/8" to 8" maximum,



or can be fitted to a short 6 or 8" duct. Motor is mounted in a separate compartment from the air stream. Available in 7, 9, and 10" sizes, complete with automatic back draft damper and intake grills. Furnished for 110-volt operation, wardly inclined, non-overloading

Model R roof ventilator is made in 7, 9, and 10" sizes with a collar to fit over standard 6 or 8" duct leading to the roof. Model BV, largest in the line, comes with 9, 10, 12, or 14" impeller. It is available in single phase, 110 volt, 2-speed; and in 220 volt, 1-speed or three phase 1-speed. Motor assembly floats at four points on rubber vibration eliminators. It can be furnished with or without aluminum, louver-type automatic back draft dampers. All models equipped with backwardly inclined, non-overloading

aluminum impeller of special design. All models have direct drive.

Circle No. 140 on Reader Service Card

Room Coolers

Product: Year-round room air conditioners in 3 sizes.

Manufacturer: Amana Refrigeration, Inc., Amana, Iowa.

Features: The 1½-hp unit (50A) and the ¾-hp model (75A) have same size cabinets; 25" wide, about 32" deep and about 15" high.

Want to
GET RID OF SCALE?

SCALE kills Efficiency!

EVIS WATER CONDITIONERS are the *modern answer* to costly scale problems. The Evis catalytically endows water with new properties. These new properties tend to keep scale in a loose form. In this condition scale is readily washed along through the system by the flow of water, and metal surfaces remain scale-free. It sounds too simple, but it's just that easy with Evis!

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Western American Life Bldg.	733 Spring St. N.W.	

Model 100A, the 1-hp unit, is 2' deeper. Units offer six different combinations of cooling, heating and ventilation each of which may be selected by adjusting one hori-



zontal glider control. All models are equipped with a thermostat for automatic temperature control. When unit is not in use, control panel is covered by a hinged door that becomes part of the front styling of the unit. Tough plastic cabinet has all intake and outlet louvers located at the back. Each of seven control positions is color coded and softly illuminated for operation in the dark. Instead of usual system of small air-deflecting vanes, the units are equipped with one large air deflector. A heating unit is included for use on chilly days. The refrigeration system is hermetically-sealed, has all-weld construction. Pump-out system is provided to clear a smoky or musty room.

Circle No. 141 on Reader Service Card

Air-Cleaning Unit

Product: "PX Precipitron" electronic air-cleaning unit.

Manufacturer: Westinghouse Electric Corp., Pittsburgh, Pa.

Features: Combining 90% cleaning efficiency with simple push-button method of spray washing, unit cuts maintenance costs and eliminates inside-the-duct washing of cells. Accumulated dirt on electronic collector-plate surfaces of the unit is flushed away by penetrating hot water from needle-spray nozzles attached to a motorized header. After moving slowly across unit's face, header automatically reverses and returns to starting position. Header also applies an adhesive oil to collector plate surfaces when washing is completed. Oil binds collected

dirt together and acts as a solvent for the wash operation. Height and width of unit depends on cleaning requirements of a proposed system. Power packs and control units are located outside the duct.

Circle No. 142 on Reader Service Card

Packaged Units

Product: Line of packaged air conditioners.

Manufacturer: General Electric Co., Bloomfield, N. J.

Features: All-in-one completely sealed cooling system, incorporates hermetic condensing unit, lubricated for life. Entire system including cooling coil, drain pan and refrigerant piping is on a single sturdy frame. High speed compressor cuts vibration and noise to minimum. Piping connections can come across



the bottom, back or either side. Condenser is quickly adaptable for cooling tower use. Accessory heating coil is available to provide warmed, filtered air in the winter. Available in 3, 5, 7½, 10 and 15-ton units.

Circle No. 143 on Reader Service Card

Air Dryer

Product: Model 25R adsorption air dryer.

Manufacturer: Bryant Heater Div., Affiliated Gas Equipment, Inc.

Features: Unit will reduce relative humidity in controlled areas from as high as 90% to 8%. Plugged directly into 115 volt circuit, dryer may be controlled by a standard humidistat, requires no drains or other connections. Damp air passes through a bed of silica

gel, trapping moisture within particles of gel. Small electric heater continuously regenerates the gel. Unit will remove as much as 21 pints of water per day. Air dryer mechanism will not frost, efficiency improves as control level is lowered. At high levels, about 60% of moisture in the air is removed, while at low levels more than 90% of moisture is removed in a single pass through the unit. In addition



to this model, Bryant also has a line of atmospheric dryers in nine standard sizes. These units remove from 21 to 12,720 lbs. of water per day. Custom equipment will remove up to 75,000 lbs. of water daily. Dryers are capable of delivering -70 F dewpoint air without resorting to mechanical refrigeration. Rotary drying principle provides no loss of desiccant.

Circle No. 144 on Reader Service Card

Room Cooler Line

Product: Line of room air conditioners in 10 models.

Manufacturer: Mitchell Mfg. Co., Chicago, Ill.

Features: Available in ⅓, ½, ¾, 1, and 1½-hp sizes, these units extend only 2¼" past the window pane, allow curtains, drapes, etc. to hang straight, completely covering unit when it is not in use. Air foil diffusers assure draft-free circulation. Jet cooling coil maintains peak cooling capacity under severe operating conditions. Two fan system improves ventilation as one fan pulls air in from outside while other fan pushes it out into the room after boosting its volume and velocity. Sound muffling device cuts down on noise. Concealed single knob control provides seven levels of comfort. "Weath'r Robot" automatic thermostat is offered as standard equipment on ¾, 1, and 1½-hp units, is optional on other units.

Circle No. 144 on Reader Service Card

PNEUMATIC CONTROLS . . .

Continued from page 72

various applications including manual control of equipment normally under automatic control. For this purpose a three position switch is used, connected as in Figure 5. These air switches are really diverter valves and are not to be confused with pneumatic electric relays.

In the position shown, the valve would be under automatic control, the branch line being connected to the controlled valve. In the closed position, all lines would be closed except the one between the switch and valve motor. This would con-



nect to the exhaust port, releasing the pressure in the valve motor, closing the valve. In the open position, main line pressure would be supplied to the valve, holding it open.

Where heating is included in a control system, it is often necessary to limit the temperature of the supply air regardless of the room temperature. This involves the use of a high limit controller to take control of the supply air until the room temperature is such that the room thermostat will control.

A common method is illustrated in Figure 6. Since heating valves are usually normally open, the room thermostat and limit control are set reverse acting and the valve operated through a reverse acting relay.

Increase of supply air temperature to within throttling range of

the limit controller will decrease air pressure in the branch to the relay. This will permit air to pass to the valve, through the relay, and close the valve. When room temperature rises to the throttling range of the room thermostat, it will reduce air pressure and take control of the relay and valve.

Pneumatic relays are sometimes built into controllers or used with them to reduce air consumption. A diverting relay can be used to bleed a branch line and close the supply on either increase or de-

crease in pressure or to supply pressure to either of two lines.

Electric pneumatic relays are widely used to close dampers when fans are shut off. They will supply pressure or bleed branch lines in response to electric-magnetic action. They are often connected across motor leads and operate when the motor is turned on or off.

The application of the many types of controllers and controlled devices, along with their auxiliaries, to complete system control will be covered in a subsequent article.

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EXCLUSIVE

THE ONLY CASEMENT WINDOW AIR CONDITIONERS:

1. Designed and patented specifically for casement windows.
2. Window frames, muntins and mullions remain intact — no cutting, filing, sawing or modification of casement window structure.
3. Centrifugal fans on both evaporator and condenser (high and low sides) for positive air quantity assuring highest possible efficiency.
4. Patent applied for apparatus between condenser fan scroll and end condenser coils for positive moisture evaporation under all conditions.
5. Fits any window opening as small as 10 1/4" high and 14 1/2" wide.
6. Full line of sizes for casement window installations, 1/2, 3/4, and 1 HP.
7. Does not block out light from full section of casement window.
8. Permits lowering of shade or blinds over window from top of window to top of air conditioner.
9. As easily installed in conventional windows.
10. Lowest saturation point and highest potential of any window type air conditioner built today.

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Fully adjustable gas regulator, 12½ ft. of hose, precision handle, leak detecting stem, and suction hose complete this valuable kit.

You can quickly locate the most minute leaks of halide refrigerant gases with this handy, air-acetylene, leak detecting outfit. An extra-long hose lets you work unhampered in those hard-to-get-at places. And a shutoff valve and built-in pilot flame control in the handle give you real convenience and economy. Ask your LINDE jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Dominion Oxygen Company, Limited, Toronto.

**GET IT FROM YOUR
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Circle No. 59 on Reader Service Card

82

USEFUL

BULLETINS • BOOKLETS • CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

FOR THOSE OF YOU who want more information on the "Genetron" line of refrigerants, General Chemical Div., Allied Chemical & Dye Corp., has published a brochure that contains all pertinent data. What these refrigerants are, how they work and how they're made is covered. Technical service bulletin 11.12A contains selected physical data, quality specifications. Full-page graphs show saturated liquid and vapor density, heat content, and vapor pressure for Genetron 11 and 12 refrigerants.

Circle No. 111 on Reader Service Card

SERVICE REPLACEMENT CAPACITORS for electronic and other applications are completely presented in a 38-page catalog offered by Cornell-Dubilier Electric Corp. Catalog 200D contains illustrations of each type capacitor listed and dimensional drawings. Complete temperature range and standard tolerance figures for the various units are included.

Circle No. 112 on Reader Service Card

ALL THE INFORMATION you could want on "Tri-Clad 55" motors built in 1 to 30 hp ratings is inclosed in the three 4-color bulletins available from General Electric Co. The publications contain complete descriptions of the maintenance, performance, and protective features of the line and each includes a 2-page cut-away illustration of the motors. Described are dripproof models, enclosed and gear motors.

Circle No. 113 on Reader Service Card

RESEATING LEAKY VALVES instead of replacing them with new ones is proposed by M. B. Skinner Co. in its new brochure which covers the tools you need to do this type work. Illustrations of the tools in the styrene plastic carrying case and illustrations of the valve and bib reseater in operation are included. Accessories are also covered.

Circle No. 114 on Reader Service Card

ALUMINUM-JACKETED "Foamglas" pipe insulation is described in a catalog sheet available from Pittsburgh Corning Corp. Advantages of the wrapped-at-the-factory cellular glass insulation and illustrated condensed specifications for the insulation of both hot and cold lines are presented.

Circle No. 115 on Reader Service Card

FOUNTAIN-FAST FOOD equipment in the "Hi-Line" series is covered in a 20-page catalog presented by Bastian-Blessing Co. The catalog contains illustrations of the various units that make up the line as well as descriptions and specifications. Accessories are also presented.

Circle No. 116 on Reader Service Card

(More Useful Literature on page 84)



—Herbert Farnum, President
Long Island Canning Co.,
Riverhead, L. I., N. Y.

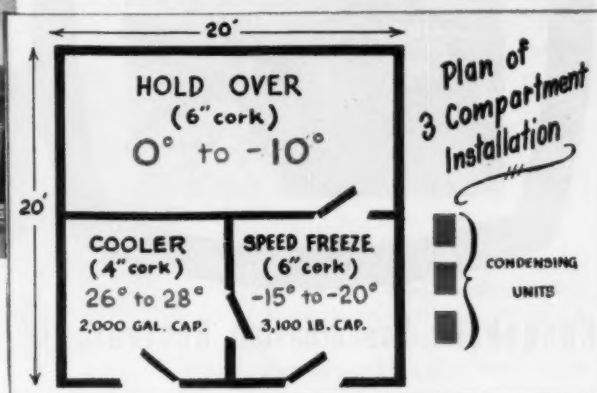
*"Our problem was processing
20,000 bushels of clams a year...
KELVINATOR lowered
our costs **75%!**"*



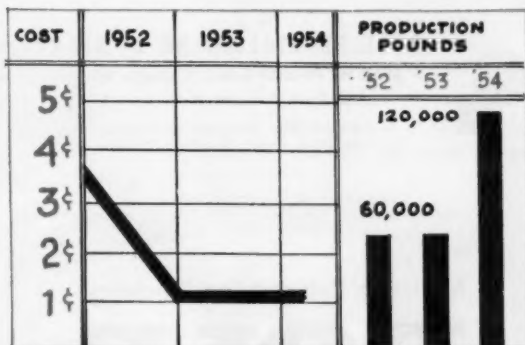
"We handle about 60,000 bushels of clams a year—about a half million dollars worth. Two thirds are canned, and a third are frozen. We sell to restaurants, hotels, and institutions. Our success rests entirely on quality. Clams, however, are one of the most highly delicate foods you can process—freezing and maintenance of temperature must be right on the button, or else the flavor is affected.



"Believe me, we are more than satisfied with our Kelvinator set-up—the capacity turned out to be a good deal more than we had expected. Regardless of the weather, holidays and other uncertainties, we have complete protection—can store up to ten day's production. Processing clams formerly cost us four cents a pound—now they have dropped to one cent. The installation has turned out so well that we plan to double our frozen clam output during the coming year. This installation sure got our costs and production going the right way fast."



"Up 'til this year we had been shipping clams 10 miles to a public freezer, but early this year we decided to put in our own cooking, freezing, and storage equipment. Mr. Raymond P. St. Laurent, our Vice President, and I talked to a number of concerns, but we were most impressed by the understanding, analysis and engineering know-how of Jack Montgomery, partner in the South Shore Refrigeration Service, Bayshore, L. I., leading Kelvinator distributors. So we put in the installation he recommended.



How Much Cooling Do You Need? No matter what your refrigeration requirements are, your Kelvinator engineer will give your installation the same careful analysis that was given this job. You can be assured he will recommend the unit that's just right for you. Contact your nearest Kelvinator Distributor or Zone Office for full information and prompt service.

**Leaders in commercial
refrigeration for 39 years—**

Kelvinator

Division of Nash-Kelvinator Corporation, Detroit 32, Mich.

and AIR CONDITIONING • JANUARY, 1954

When the best in refrigeration
is required ... specify ... **DOLE**
HOLDOVER PLATES



Kungsholm Scandinavian Restaurant

CHICAGO, ILLINOIS

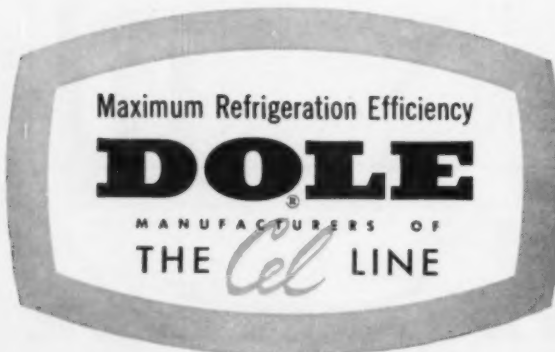
Uniform temperatures are constantly maintained in this specially designed, cold plate surface Smorgasbord table by the use of **DOLE HOLDOVER PLATES**. Cold food delicacies are always kept appetizingly fresh and tasty until served ... **DOLE HOLDOVER PLATES** are available in lengths and widths to fit any standard or special dispensing tables, cabinets, or shelves.

WRITE FOR CATALOG AE

DOLE REFRIGERATING COMPANY

5942 N. Pulaski Road, Chicago 30, Ill.
103 Park Avenue, New York 17

In Canada: Dole Refrigerating Products, Ltd.
44 Elgin Street, Brantford, Ontario



Circle No. 61 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 82

FIVE CATALOG PAGES are available from Sherer-Gillett Co. which describe and illustrate their "Stylaramic" reach-in refrigerator line, the "Four-by-Four" refrigerated display case, and the "Thrifty-Cooler" sectional walk-in cooler. Complete specifications, construction features, etc., on each type unit are presented.

Circle No. 117 on Reader Service Card

SMALL PUMPS for industrial use and for general purpose use are featured in catalogs 101 and 102 presented by Tuthill Pump Co. A pump guide is contained in both catalogs which presents the services, operating data, and distinguishing features of each model so the reader can quickly determine the specific pump for his use. Dimensions and parts diagrams, performance curves, mounting styles and design modifications are in both catalogs.

Circle No. 118 on Reader Service Card

HAIR HYGROMETERS and thermometers, recorders and recording controllers are described in bulletin 6504 presented by Minneapolis Honeywell Regulator Co. Included are typical applications in various industries and schematic drawings of the hair element-pen hookup and the thermal system. Specifications on all type models are also included.

Circle No. 119 on Reader Service Card

SOLDERING IRON FURNACES which feature radiant gas-fired burners are described and illustrated in bulletin SC-1038 presented by Selas Corp. of America. This bulletin contains a cross-section drawing showing interior alignment of parts. Operation and performance data is shown in respect to their position in the bench furnace.

Circle No. 120 on Reader Service Card

THE COMPLETE LINE of portable hoists made by Coffing Hoist Co. are described and illustrated in an 8-page condensed catalog available from the firm. Over 100 different types and sizes of these hoists are included with complete specifications. Featured are the "Mighty Midget" pullers, which have a 1000-lb capacity but are small enough to fit on a serviceman's tool belt.

Circle No. 121 on Reader Service Card

A FILE FOLDER of information sheets describing electrical, mechanical and electronic meters and special apparatus is offered by Sterling Mfg. Co. This 9 x 12 folder contains photographs and listings of ac and dc voltmeters, ammeters, milliammeters, resistance meters and pocket meters and special application meters. Engineers' suggestions regarding use of indicating action meters is also included.

Circle No. 122 on Reader Service Card

ODORLESS SEALING COMPOUNDS as well as the complete line of "Presstite" sealing compounds for the refrigeration industry are covered in a 34-page catalog presented by Presstite Engineering Co. The illustrated catalog provides information on laboratory data, specifications and methods of application for 50 types of refrigerant sealers.

Circle No. 123 on Reader Service Card

(See page 74 for Air Conditioning Literature)

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For Air Conditioning Products turn to page 76)

Refrigeration Coil

Product: "Wedge" refrigeration coil designed for reach-in refrigeration boxes.

Manufacturer: Kramer-Trenton Co., Trenton, N. J.

Features: Complete unit takes no more height than ordinary milk bottle. Only 8½" high, wedge shape permits maximum use of shelving. Unit designed for standard shelving, requires no special shelving cut outs. Complete with built-in heat exchangers, unit has an oil-less, con-



tinuous duty motor. Available in four sizes, coil has a capacity of 1030 to 5600 Btu/hr. Cold air travels down the back wall of fixture, eliminating cold blasts against doors, reducing sweating to minimum.

Circle No. 151 on Reader Service Card

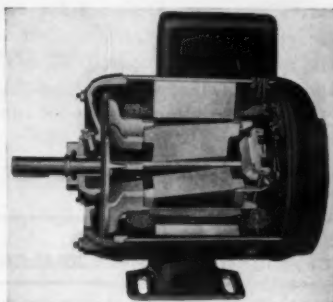
Electric Motors

Product: Form "F" fractional horsepower motors.

Manufacturer: Century Electric Co., St. Louis, Mo.

Features: Three types available: "SP", split phase single phase induction motors for general purpose applications where the load is easy to start and easy to pull up to speed; "CS", capacitor start single phase induction motors for hard to start applications; and "SC", squirrel cage polyphase (2 or 3 phase) induction motors for all general purpose applications. Available in sizes from 1/6 to 1 hp, with

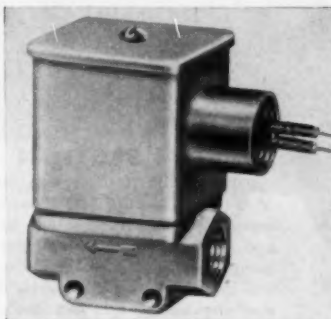
1200 to 3600 rpm. Available with solid cast phosphor-bronze sleeve bearings or with ball bearings. Complete stator winding is dehydrated, thoroughly saturated with thermal



setting baked plastic varnish. Switch provided with coin silver contacts. Circle No. 152 on Reader Service Card

Midget Solenoids

Product: Type K-27, K-28, and K-29 magnetic stop valves for use with all types of gases and fluids.



Manufacturer: General Controls Co., Glendale, Calif.

Features: Smaller than two packs of king-size cigarettes, valves operate in any position, feature positive shut-off, low current consumption, optional time-delay, and adjustable bypass and main flow. Type

K-27 is available in aluminum, brass or stainless steel body materials. Can stand up under continuous cycling, providing rapid, positive shut-off. Type K-28 designed specifically for use on domestic oil burners. Built-in time delay action prevents immediate opening of valve until burner motor gains full running speed, assuring proper fuel-air ratio and normal combustion. When motor circuit breaks, valve closes instantly to prevent oil dribble. These factors reduce smoky starts, lessen accumulation of carbon on nozzle and electrode. Type K-29 designed for use on domestic and commercial oil burners. Manual reset type fails safe on current failure or poor voltage conditions, must be manually reset after trouble is corrected.

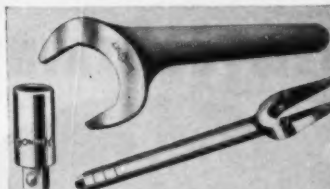
Circle No. 153 on Reader Service Card

Hand Tools

Product: Three tools for refrigeration and air conditioning service.

Manufacturer: Bonney Forge & Tool Works, Allentown, Pa.

Features: Top illustrated tool is



a Sporlan valve wrench. The 30° head enables easy removal of power element from body of Sporlan expansion valves. Lower tool is a separator for removing pulleys. It is especially suitable where limited space prevents use of screw-type puller. Item at left is special ¼" male drive socket for use on Frigid-air valves.

Circle No. 154 on Reader Service Card

Capacitor Kit

Product: Assortment of 76 "Cub" capacitors.

Manufacturer: Cornell-Dubilier Electric Corp., South Plainfield, N. J.

Features: Offered in big compartment-type clear plastic hinged cover case which is included by

manufacturer without extra charge. All capacitors in kit are rated at 600 v.d.c.w. "Cub" is new molded tubular capacitor which contains built-in safety margin to compensate for possible circuit changes.

Circle No. 155 on Reader Service Card

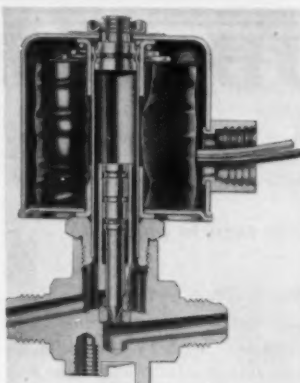
Solenoid Valve

Product: Model 73 solenoid valve.

Manufacturer: A-P Controls Corp., Milwaukee, Wis.

Features: Available in three orifice sizes and in four body styles, valves incorporate double dipped, varnish impregnated coils to insure efficient performance under extreme humidity conditions. Coil is easily changed to suit special application voltages. Electrical data plate accompanies each interchangeable coil. When a coil is changed, the new plate is fastened under the coil cover nut, thus the identifying data on the valve is correct at all times. Coil cover is held with one nut, can be rotated through 360 degrees to simplify electrical connections.

Valve is equipped with a long-life, quiet-floating plunger, and the needle valve and seat are protected



against dirt by a removable non-corrosive screen. Designed for any non-corrosive liquid, refrigerants or air, valve is available in 5/32, 3/16 and 7/32" orifice sizes for 3/8 n.p.t., 3/8" flare, and 3/8 or 1/2" sweat connections.

Circle No. 156 on Reader Service Card

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

Emulsion Cleaner

Product: "Brulinsolv" concentrated solvent emulsion cleaner.

Manufacturer: Brulin & Co., Inc., Indianapolis, Ind.

Features: When mixed with low cost solvents such as kerosene, the concentrate steps up cleaning action of the solvent. Action is very similar to detergents in water. Characteristic permits flushing surface with water. Concentrate is non-toxic and non-corrosive, has a pleasant odor. Completely free of chlorinated or phenolic compounds.

Circle No. 157 on Reader Service Card

Tube Fittings

Product: Line of "Poly-Flo" tube fittings.

Manufacturer: Imperial Brass Mfg. Co., Chicago, Ill.

Features: For connecting polyethylene and other plastic tubing, fitting can be finger tightened. Fittings are compression type; consist of a brass body with integral tube support, brass nut and polyethylene sleeve. Fittings can also be supplied

SELF-CONTAINED

DUAL-TEMPERATURE REFRIGERATOR and FREEZER

Save Space • Save Steps
Save on Installation

A Full-Size Refrigerator
And a Full-Size Freezer
In One Unit



Illustrated
SF 80-31-S-80"
long, Freezer Section
Capacity: 11.5
cu. ft. Refrigerator
Section Capacity:
49.0 cu. ft.



FREEZER SECTION — behind separate door. Temperature maintained at 0° to -10° F. A full 4" of insulation separates freezer food section from standard refrigeration section. Freezer section lining consists of zinc metallized double wall plates. One adjustable Aluminum shelf provided in addition to one non-adjustable cold plate upper shelf. Sizes range from 4.1 cubic feet to 12.5 cubic feet.

REFRIGERATOR SECTION — provides independent moist-cold refrigeration at 36° F. by means of Hi-Humidity Coil. Entire refrigerator section in Stainless Steel as are exterior front and both ends of entire unit. Capacities range from 7.2 cubic feet to 58.3 cubic feet.

- Self-Contained models operate off a single Low Temperature Compressor with necessary control valves. 5 year Warranty on sealed compressor.
- 100% metal construction, including doors.
- 15 different self-contained and 8 remote control units available to fit any size establishment.

Sold thru Leading Hotel and Restaurant Supply Dealers. Write for Literature.

STAINLESS FOOD EQUIPMENT CO. • NEWARK 3, NEW JERSEY



Have a Solenoid Problem?

LET US HELP YOU SOLVE IT!

If you need a Solenoid Valve for air, water, steam or refrigerants in capacities to 50 tons Freon-12, call on **DETROIT**. Chances are, you'll find an immediate solution with a standard **DETROIT** model. If not, for some special applications **DETROIT** will design a valve to meet your requirements. Either way, you'll find it pays to call on **DETROIT**—your Specialist in Solenoids.




DETROIT
5900 TRUMBULL
DETROIT 8, MICHIGAN

ESTABLISHED AS **DETROIT LUBRICATOR COMPANY** IN 1877

Controls **CORPORATION**

Division of American Radiator & Standard Sanitary Corporation

Canadian Representatives in Montreal, Toronto, Winnipeg—Railway and Engineering Specialties, Ltd.

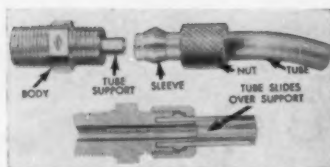
AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

Serving home and industry
AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

Circle No. 63 on Reader Service Card
and AIR CONDITIONING • JANUARY, 1954

in stainless steel for use with "Teflon" or other tubing. Integral tube support in the fittings supports the tubing in the sealing area permitting the sleeve to grip it securely. Now available in $\frac{1}{4}$ and $\frac{3}{8}$ " sizes with additional sizes to be made available shortly. Styles furnished include elbows, half-unions, tees and bulkhead unions. Joints recommended for working pressures up to 125 psi in $\frac{1}{4}$ " size and 100 psi in $\frac{3}{8}$ " size. Temperature range is from -90 to 175 F. Tubing is impervious to most solvents and is



non-toxic, odorless and tasteless. Accessories include a "Kwik-Disconnect" shut off valve to cut off flow when tubing is disconnected.

Circle No. 158 on Reader Service Card

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

New Arrival in Marsh "Serviceman" Family



*Smash hit
at the
All Industry Show*

The MARSH Serviceman TIMER

IT SHOWS:

Total running time
Total elapsed time
on 24-hour dial



**115 VOLT,
60 CYCLE MODEL**

For testing smaller units with compressors of $\frac{3}{4}$ hp. or less. Operates in series . . . Simply plug equipment into timer; timer into wall outlet.



**230 VOLT,
60 CYCLE MODEL**

For testing larger installations regardless of horsepower. Operates in parallel. Note well shielded alligator clips for attaching to motor terminals and power lines.

This great addition to the "Serviceman" line does a vital job supremely well. Its white hairline pointer shows total time of test; red pointer shows total running time. It is easier to read, use, and interpret than a recorder . . . has no charts or leaky pens to bother with . . . yet it is very moderately priced.

Two models (opposite) cover all conditions. Note sturdy case finished in attractive hammerloy gray with sharp white numerals on black dial . . . also suction-cup feet for firm placement without damage to finish. This is the instrument you've been waiting for. Write for details, or

See your Wholesaler

MARSH INSTRUMENT CO.

Sales affiliate of Jas. P. Marsh Corporation
Dept. P, Skokie, Ill.

MARSH

Refrigeration Instruments

GAUGES • WATER REGULATING VALVES • SOLENOID VALVES • HEATING SPECIALTIES

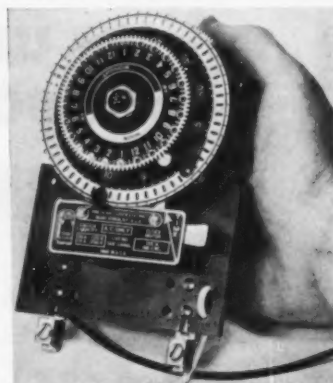
Circle No. 68 on Reader Service Card

Combination Dial

Product: Combination dial for time switches.

Manufacturer: Tork Clock Co., Inc., Mount Vernon, N. Y.

Features: Dial enables automatic time switches to control both long and short operations with use of only one dial. The 24-hr. dials presently in use on most timers do



not permit settings of less than 15 minutes without additional, costly minute dial. The combination dial consists of a 24-hr. dial mounted on a 60-minute dial. Simple pin settings permit the automatic control of operations from 1 to 55 minutes. Action is automatic and continuous. Once set, the switch requires no further adjustment. A manual lever for on and off hand operation without disturbing the master cycle is built in.

Circle No. 159 on Reader Service Card

AC-DC Wonderbar

Product: Three dual-voltage "Wonderbar" refrigerette models.



Manufacturer: Servel, Inc., Evansville, Ind.

Features: Flip or toggle switch converts units to either low-voltage d.c. power or standard voltage a.c. power. This enables use of refrigerette on board ship as well as on land. While craft is cruising, unit

can be operated on boat's electrical system. When docked, unit can be connected to any standard outlet. Units can be used in home or office during week, then placed on board over week-ends or on vacation cruises. Three voltages available are 12, 24, and 32 d.c., 115 volts a.c. Storage capacity of about 1.5 cu. ft. holds 25 soft drink bottles, 12 quarts of milk, 42 cans of beer. Siphon-size bottles also accommodated. Unit freezes 28 ice cubes in snap-out trays, has chill shelf for snacks and sandwiches.

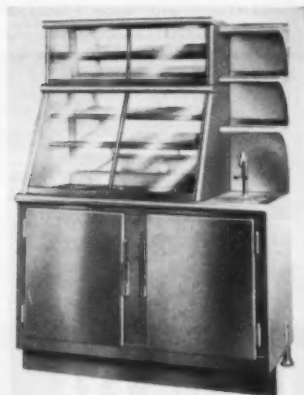
Circle No. 160 on Reader Service Card

Salad Cooler

Product: Salad cooler unit.

Manufacturer: Dunhill Soda Fountain Corp., Brooklyn, N. Y.

Features: Cooler has integral refrigerated water station and three shelves for glasses. Entire unit made of heavy gage steel with front facing clad in stainless steel. All joints electric-welded. Interior and exterior back, ends and bottom panels are



sprayed with thick coating of synthetic aluminum. Pure 2" thick vegetable corkboard insulation is used throughout. Corkboard completely sealed-in with asphalt cement to protect storage compartment against heat leakage. Refrigeration is provided with a blower-type refrigeration coil for peak efficiency. Water station is cooled with a HX 15-gal instantaneous cooler, complete with all necessary valves, fittings, etc. Brass-cast chromium plated push-back faucet with counter-sunk non-splash drip tray placed at end of pantry case. Units are: 24" deep, 36" high, with 36" working height.

Circle No. 161 on Reader Service Card

Self-Service Case

Product: Improved model 2700 self-serve case.

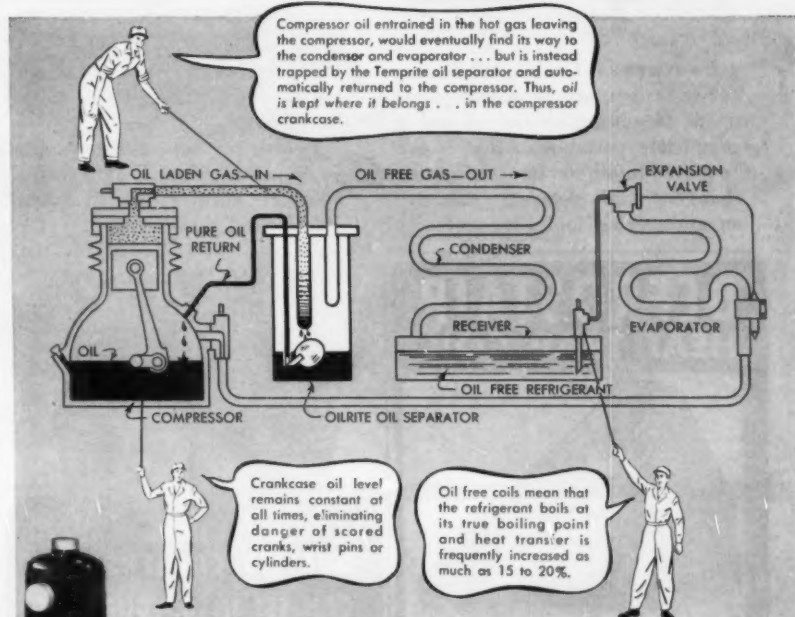


Manufacturer: Sherer-Gillett Co., Marshall, Mich.

Features: Continuous type case designed for display of packaged fresh meats, produce and dairy

products. Extended aluminum front panel and matching tag molding. Efficient refrigerant and air flow system assures complete enveloping of merchandise on display with chilled air. Convertible-reversible feature on storage compartment permits use of sliding doors in front or rear as well as in both front and rear so that a pass-through arrangement can be used. Also available as a single duty job with solid panels front and rear. Accessories available with both 6 and 10' lengths are water spray hose assembly, high

Keep oil where it belongs...



...with a **TEMPRITE** oil separator

Oil congeals quickly in low temperature coils, cutting down heat transfer and boosting operating time. Because of this common difficulty it is frequently impossible to reach desired temperatures. A Temprite

Oil Separator overcomes this problem and permits the refrigerant to boil at its true boiling point. Temperatures from 4 to 7 degrees lower are easily reached at no increase in operating time. Write now for particulars.

Available in capacities from 1/6 h.p. to 50 tons... for all types of commercial applications.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous



Liquid Cooling Devices

P. O. BOX 72-B, E. MAPLE RD., BIRMINGHAM, MICH.

Circle No. 64 on Reader Service Card

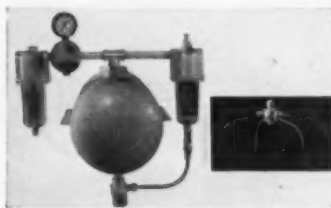
glass and wings and display dividers. Superstructures available in overall case heights of 59 and 66". The 66" unit has sliding mirrored doors so the display can be serviced from the rear.

Circle No. 162 on Reader Service Card

Coolant System

Product: "Lo-Jet" coolant system.

Manufacturer: Air Conversion Research Corp., Chicago, Ill.



Features: Cooling-lubricating device is designed to accommodate up to 16 cutting operations and is completely portable so that it can be moved to different operations for changing work demands. Effective on multiplying tool life, unit also

permits taking fuller cuts on any work. Unit eliminates all objectionable odors, smoke and allergy problems of old style lubrication methods. Operates on expansion-cooling of gas refrigeration principle. Coolant is forced into high velocity air stream where it is atomized into a fine mist. It is then directed to the tool through the centrifugal distributor, flexible high pressure tubing and nozzle. Coolant is cooled below room temperature and cools the tool; jet action carries away tool heat and keeps chips out of the way.

Circle No. 163 on Reader Service Card

Superstructures

Product: Detachable superstructures for 6 and 8-hole chest type freezers.

Manufacturer: Savage Arms Corp., Refrigeration Div., Utica, N. Y.

Features: Superstructures come equipped with full color pictures and with flavor strips. Also available are transparent lids for cabinet

openings. "Clear-Vision" lids are made of crystal-clear plastic. Stores already equipped with 6 or 8-hole chest-type freezers can be supplied



with superstructures for attachment to these cabinets, or can be furnished Savage cabinets and superstructures complete.

Circle No. 164 on Reader Service Card

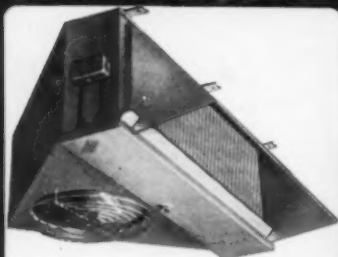
Welding Gun

Product: Light-weight "Airco-spot" spot welding gun.

Manufacturer: Air Reduction Sales Co., Inc., New York, N. Y.

Features: Gun uses 3/32" non-

"DEFROSTAIR" HEAT TRAP COIL



Automatically Defrosts Itself

Rising warm air is confined under hood of refrigeration coil housing within fin and tube area. Coil defrosts completely without warm air escaping into refrigerated zone. No re-evaporation. No special plumbing. Easy to install. Low cost. Field tested since 1944. All patents granted. Defrostair coil is designed for all low temperature applications and fresh meat rooms below 34° F.

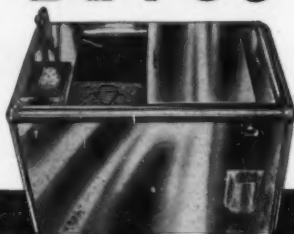
Write for information

A. H. WITT COMPANY
940 Sycamore Ave., Los Angeles 38, Cal.
Representatives in principal cities

WITT Coils Over 30 years
reliable service

Circle No. 67 on Reader Service Card

BEVCO



QUALITY COOLERS YOU
CAN FIT INTO YOUR LINE
AND SELL AT A PROFIT

ACCESSORIES



You sell quality, trouble-free cooling in these electric units that operate wet or dry. In 3 sizes... 4, 5, 6 ft. Unobstructed interiors. Baked Enamel finish for beauty and sanitation.

SEND FOR CATALOG C-1

The BEVCO Company, Inc.
3316-28 S. BROADWAY • ST. LOUIS 18, MO.

Circle No. 66 on Reader Service Card



LIQUID EYE®

on the Refrigerant Line
means:

- Perfect refrigerant visibility
- Straight-through flow
- No turbulence
- Leak-proof
- Shock-proof
- Vibration-proof
- High safety factor
- Spring-loaded gaskets

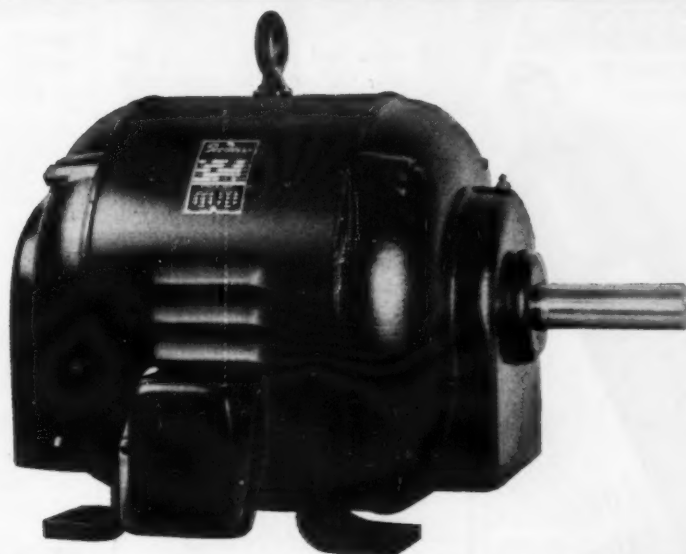
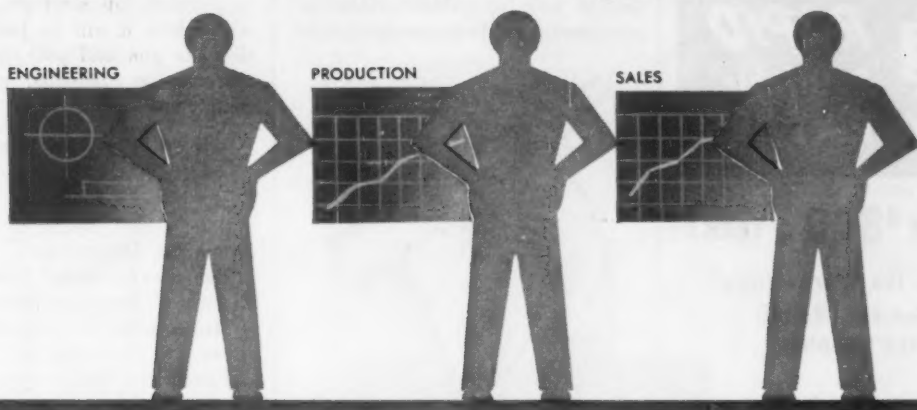
Sold by Leading Wholesalers. Send for Catalog B-52 covering the complete Allin line.



Allin MANUFACTURING COMPANY
1153 West Grand Ave., Chicago 22, Ill.

Circle No. 65 on Reader Service Card

men who value motor performance



The POWER that Builds Reputations...

Peerless Electric gives designers free rein, and Peerless engineers work with them to match the motors with the product.

Whether you select standard motors, or specials created to your specifications, Peerless becomes part of your production department. Deliveries coincide with your production schedules. There are no delays or excuses.

Finally, Mr. Manufacturer, Peerless' competitive prices give your salesmen the lever they need for more sales.

Want to know more about Peerless putting new punch in your product? Drop us a line or give us a call.

MOTORS

FANS

BLOWERS



THE PEERLESS ELECTRIC COMPANY • 1415 W. MARKET ST. • WARREN, OHIO

Circle No. 80 on Reader Service Card
and AIR CONDITIONING • JANUARY, 1954

Use
FINE RAPID
Refillable
DEHYDRATORS

AND SAVE \$800 A YEAR!

Eliminate the "Throwaway" habit—Get the "RAPID REFILLABLE" habit!

If you use only 25 dehydrators per month, you can save \$800 a year by Refilling instead of using the cheapest "throwaways".



No other line gives you so much satisfaction, quality, safety, economy.

You get more safety, more satisfaction, more protection on every installation. All "RAPID" Refillable Dehydrators are UL listed.

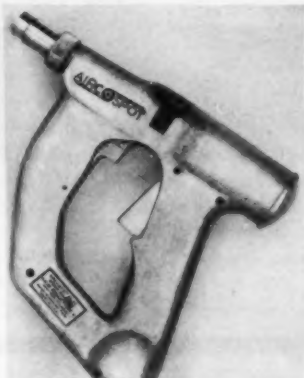
See your wholesaler or write for catalog.

DESIGN-ENGINEERED
FOR RUGGED SERVICE
Fine PRODUCTS CO.
4837 SOUTH WESTERN BLVD.
CHICAGO 9, ILLINOIS

Circle No. 69 on Reader Service Card

92

consumable thoriated tungsten electrode, helium or argon or combination of both for a shield. Makes instantaneous welds on stainless steels,



mild steels and alloys without aid of jigs or fixtures. Unit consists of hand gun, control panel and all necessary hose and cable equipment. A standard dc power source either motor generator set or rectifier type machine is required for operation. Water cooled gun does not require high frequency. Gun is rated at 250 amps. Welds may be made on sheet metal up to 1/8"

**DELAVAN
REPLACEMENT
TERMINALS**



**SEAL
TERMINAL
LEAKS
FASTER**

DELAVAN replacement terminals seal leaks in hermetic units permanently. No need to remove unit. No special tools required.

Write for Catalog 50B

**DELAVAN
MANUFACTURING CO.**
GRAND AVENUE & 4TH ST.
WEST DES MOINES, IOWA

Circle No. 70 on Reader Service Card

JANUARY, 1954 • COMMERCIAL REFRIGERATION

thick. In most cases, a back-up plate is unnecessary. Operator need only to position top sheet on the piece with which it will be joined, position the gun and pull the trigger. Operation is completed in approximately one second.

Circle No. 165 on Reader Service Card

Beverage Dispenser

Product: Model 1500 "Auto-Electronic" beverage dispenser.

Manufacturer: Majestic Enterprises, Ltd., Los Angeles, Calif.

Features: Unit equipped with an automatic stainless steel valve and timer which dispenses the exact amount of beverage by pressing a button. It registers every drink on an automatic counter. Dispenser de-



signed for beverages made from fruit syrups or concentrates. Has capacity of approximately 12 gallons. Bowl is made of clear Plexiglas permitting 100% visibility of the contents, can be easily removed by hand for thorough cleaning. Circulating pump sprays the beverage to the top of the dome showering it down over the cascades. Unit has self-contained, heavy-duty vacuum sealed compressor motor and is thermostatically controlled to maintain even temperature of 40 F or lower.

Circle No. 166 on Reader Service Card

Water Filters

Product: Sump and line type filters for water applications.

Manufacturer: Marvel Engineering Co., Chicago, Ill.

Features: For either sump or line installation in 8 capacity size units from 5 to 100 gpm. Greater



capacities attained by multiple installations. Choice of mesh sizes ranging from coarse 30 to very fine 200 handle various size particles. Synclinal design of filtering area offers $2\frac{1}{2}$ times more active filtering area. Entire unit easily disassembled and cleaned by any serviceman. Line type filter operates in any position.

Circle No. 167 on Reader Service Card

Caulking Compound

Product: No. 620 caulking compound in tape form.

Manufacturer: Products Research Co., Los Angeles, Calif.

Features: Caulking has soft, moldable consistency with a thread core that prevents stringing out or sagging when unrolled. When ap-



plied between two surfaces and slight pressure is used, caulking distributes itself evenly throughout the joint. Tape has very adhesive, "tacky" back, will not dry out, crack or shrink. Temperature range extends from -25 to 250 F over extended periods, and up to 450 F intermittently. Tape acts as corrosion inhibitor and vibration cushioner. It can be painted over or

even baked immediately after application. Tapes are available in variety of widths in $\frac{1}{16}$, $\frac{1}{8}$ and $\frac{1}{4}$ " thicknesses. It is also supplied in $\frac{1}{4}$ " oval beads.

Circle No. 168 on Reader Service Card

Thread Repair Kit

Product: Wire thread insert kit for repair of worn and damaged threads.

Manufacturer: Heli-Coil Corp., Danbury, Conn.

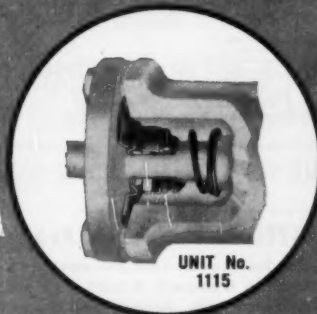
Features: Kit contains three special taps, three inserting tools, one extracting tool and 25 stainless-steel heli-coil wire thread inserts in three different thread sizes. Enables repair of tapped threads in all types of metals as well as in hardwood, plywood and plastics. Inserts have a diamond-shaped cross section, repair damaged internal threads by bringing them back to original thread size. Thread repair with the kit requires only cleaning out the original hole, tapping the cleaned hole with the heli-coil tap, and

ROTARY SEAL

Replacement Units

for Commercial, Semi-Commercial, Air Conditioning and Home Refrigerator Compressors

Easy to Install
✓
Efficient in Operation
✓



UNIT No. 1115

Simple in Construction
✓
Economical
✓

The original, precision-built Replacement Units—proven by 23 years of outstanding performance!

AT ALL LEADING JOBBERS



UNITS FOR ALL STANDARD MAKES

"Seal with

Certainty!"

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CHICAGO 14, ILLINOIS, U.S.A.

CANADIAN AGENT: 2025 ADDINGTON AVENUE, MONTREAL 28, QUEBEC, CANADA

Circle No. 71 on Reader Service Card

Carries your shop to the job...



the NEW

Service-Master

REFRIGERATION AND AIR CONDITIONING SERVICE BODY

Service-Master is designed to speed up your work — styled to reflect the ability of your firm. Its six weathertight compartments include shelves and bins for the tools and parts you'll need on the job.

Whether your chassis is old or new — you'll find it economical to choose Service-Master for your next service body.



1. Weatherlight, double-panel doors.
2. 48 1/2" wide loading area, with one-piece ribbed steel floor.

3. Fully enclosed wheelhousings.
4. Parts bin with hinged cover and removable dividers.

SERVICE-MASTER is Delivered Ready-for-Work!

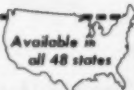
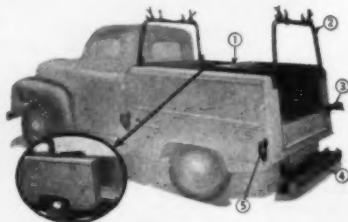


Service-Master sets the pace in service body styling. Compare it with any other make for completeness, design, and advertising value.

◀ LOOK FOR THIS NAMEPLATE!

OPTIONAL EQUIPMENT

1. Telescopic steel roof, and end-gate with locking handle.
2. Removable rack with adjustable ladder and material brackets.
3. Removable vise bracket with pipe support on head panel.
4. Rear bumper-step.
5. Pipe carrying brackets.



McCABE-POWERS AUTO BODY CO.
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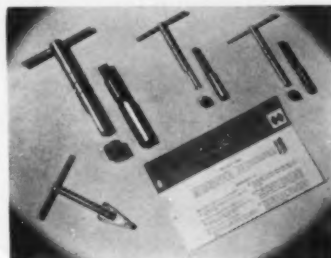
Please send me literature and complete information on Service-Master:

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

AZ

Circle No. 82 on Reader Service Card

screwing the wire thread insert into the hole with the inserting tool. Insert sizes, taps and inserting tools available in standard kits are for



those thread sizes most commonly found in the assembly of internal combustion engines but wide variety of other sizes is available.

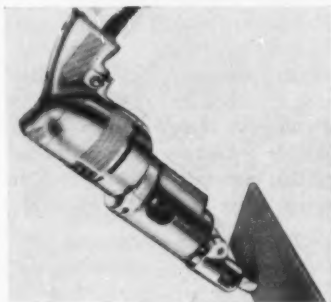
Circle No. 169 on Reader Service Card

Drill Attachment

Product: "EZ Cut" drill attachment for 1/4" portable electric drills.

Manufacturer: Jaco Devices, Inc., Hingham, Mass.

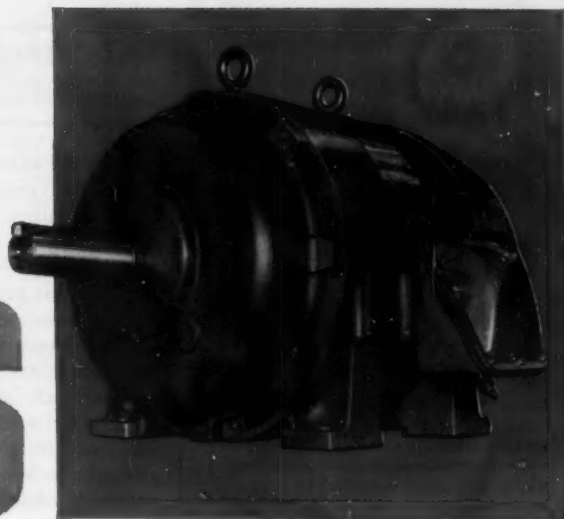
Features: Attachment locks rigidly into drill housing nose and converts drill into power sabre saw for heavy duty applications. Offers one hand control, instant insertion



and removal from drill without tools. Attachment is locked to housing, removes excessive radial stresses from drill chuck and spindle. No gears to wear or break, attachment operates on ball bearings, delivers power without vibration or overloading of the drill. Choice of adapter rings permits use of attachment with most standard duty 1/4" electric drills having 1700 to 3000 rpm and average power rating of 1.7 or more. Other cutting tools available include chisels, gouges, jig-saw and jig-saw table, files and rasps.

Circle No. 170 on Reader Service Card

"ALL
MOTORS
ARE
NOT
ALIKE!"



FOR RUGGED SERVICE, Reliance Motors are built better to last longer. These *Precision-Built* Motors combine maximum strength with shock-resistant frame and bearing-bracket construction. Write for Bulletin B-2101.



B-1470

RELIANCE

**ELECTRIC AND
ENGINEERING CO.**

1113 Ivanhoe Road, Cleveland 10, Ohio • Sales Representatives in Principal Cities
and AIR CONDITIONING • JANUARY, 1954

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- DUCT SEALS
- WEATHERSTRIP
- FLEXIBLE TUBING
- GLAZING CHANNELS



Jarene "B" Vinyl Plastic is an exclusive Jarrow compound. It is long lasting, weather resistant, compresses easily and is flexible to almost any degree from soft to semi-hard. Offered in a wide choice of colors.



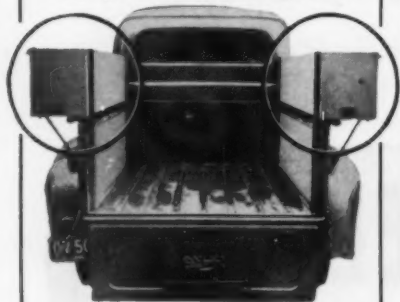
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8221 Clinton Road Cleveland 9, Ohio

Circle No. 73 on Reader Service Card
96

NOISE REDUCTION . . .

Continued from page 67

used in the water line. This type of installation prevents the transmittal of vibration to the building.

Many cities have imposed regulations which prohibit the use of city water for air conditioning. In other locations, the cost of city water is so great that it has become necessary to use evaporative condensers on nearly all jobs.

The use of evaporative condensers has introduced the problem of gas pulsations and vibrations in the hot gas discharge line. These vibra-



SEARCHING FOR NOISE in pre-production Frigidaire window air conditioners, Frigidaire engineers use an electric probe and a stroboscope to find the source of maximum noise, which in turn registers its frequency and magnitude on the oscilloscope. When an objectionable noise is found, the design is then modified to eliminate it.

tions are often severe enough to tear the discharge line from its mounting and break the line. Quite frequently a system which has unloading or capacity control will give no problem when operating fully loaded but will be very noisy when unloaded.

This problem can usually be avoided by installing a properly designed muffler, or an oil separator which is sized for the compressor, in the hot gas discharge line. It is recommended that one or the other be installed in the system whenever an evaporative condenser is used.

In highly critical installations it is sometimes necessary to erect a room of sound absorbing material around the equipment, as it is impossible to eliminate all mechanical noise. This extreme measure is usually taken only when very large units are installed in the conditioned area. With this type of in-

stallation, full consideration must be given to provisions for adequate ventilation of the equipment.

The increased use of self-contained packaged units has created problems in noise reduction. The installation of these units is becoming more and more critical as the number of installations in low noise level rooms, such as banks, offices, funeral parlors, and similar locations is increasing. Tile walls and paneling tend to amplify the noise rather than absorb it and increase the need for careful installation.

The transmittal of noise through duct work is also a problem. The use of canvas collars connecting the duct work to the unit will prevent the transmission of vibration. Flexible connections in the water line, condensate drain, and power lines will greatly decrease the amount of noise transmitted from the unit to the ducts.

Packaged units should be mounted on isolation pads of cork or rubber, and in some cases it may be necessary to line the ducts with sound absorbing material to eliminate noise caused by air moving through the ducts.

These precautions usually will prevent mechanical noise, which the manufacturer has confined within the unit by means of careful cabinet design and proper insulation, from being transmitted to the conditioned area. However, a large number of complaints are caused by carelessness and lack of attention to small details at the time of installation. Loose panels, noisy belt guards or improperly fastened tubing should always be corrected as the first step in the noise reduction process.

REMINGTON APPOINTS 3 SALES REPRESENTATIVES

Three sales representatives have been appointed in midwest territories by Remington Corp.

Ronald H. Pepin of Detroit has been named sales representative for Michigan, Ohio, and western Pennsylvania; E. G. Sommerlath, Jr. has been named district representative for Kansas, Missouri, and southern Illinois; and S. M. Davidson Co. has been named representative for Chicago, northern Illinois, Wisconsin and Indiana.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted, \$6.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢ boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢.

POSITIONS AVAILABLE

SALESMEN-AGENTS. Part time, side line basis. Sell Nationally advertised Sno-Cone ice shaving machines. Liberal commission. Leads furnished. National Serv. Co., P. O. Box 2573 Arlington Station, Baltimore 15, Md.

REPRESENTATIVES WANTED

FACTORY REPRESENTATIVES: Major manufacturer of complete line of ceiling suspended coils, and evaporative condensers has openings in several areas for factory representatives. Submit resume of personal and business qualifications to Box 1354 COMMERCIAL REFRIGERATION & AIR CONDITIONING.

MANUFACTURERS' REPRESENTATIVES WANTED by midwest manufacturer of redwood natural draft and steel induced draft cooling towers in 5 to 60 ton range. Must have established trade and be calling on air conditioning and refrigeration jobbers and dealers. In replying, include lines now being sold and areas served. Box 1254, COMMERCIAL REFRIGERATION & AIR CONDITIONING.

BUSINESS OPPORTUNITIES

FOR SALE—Well established year round refrigeration business, at inventory, in a fast growing section of Florida. Will take

some capital to handle and will consider terms to right party for balance. Reason for selling: Other interest and am unable to handle both. Box 1454 COMMERCIAL REFRIGERATION & AIR CONDITIONING.

SEEKING PARTNER—to establish and manage enterprise for selling, installing and servicing air conditioning, heating and irrigation equipment. Applicant must have engineering degree and experience in air conditioning and heating field. No capital necessary. Address "Weather-makers" P. O. Box 104, Lebanon, Mo.

L-O-F OPENS NEW ST. LOUIS SALES OFFICE

The Fiber Glass Div. of Libbey-Owens-Ford Glass Co. has opened a district sales office in St. Louis. Arthur S. White, formerly associated with the firm's Chicago office, has been named district manager.

SERVEL APPOINTS ST. LOUIS AREA OUTLET

L. W. Wind Corp., Clayton, Mo., has been named Servel air conditioning distributor for the St. Louis market area.

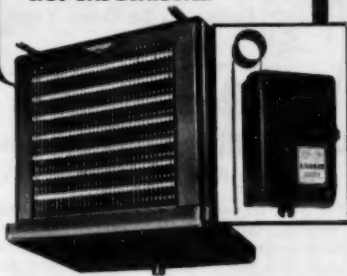
Wind Corp.'s territory includes 51 counties in the eastern half of the state of Missouri and four counties along the Mississippi River in Illinois.

Officers of corporation are Milton A. Dewes, president; L. W. Wind, vice-president, and Les Savage, air conditioning manager.

Circle No. 74 on Reader Service Card

LARKIN MEANS LOW OPERATING COSTS

FROST-O-TROL® AUTOMATIC HOT GAS DEFROSTER



The purchase price of any product is often misleading, for it precludes the cost of long-run operation. All Larkin products are engineered for the lowest possible operating costs, yet they are priced right. That's why Larkin leads the field for long-run, low-cost operation.

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans.

WATCHDOG OF THE NATION'S FOOD SUPPLY

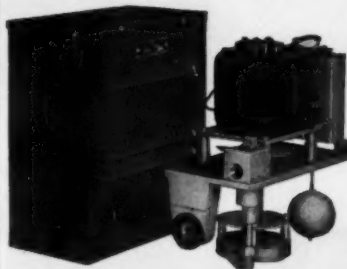
LARKIN COILS INC.
519 MEMORIAL DR., S.E. • ATLANTA, GA.

Pumps and Condensate Disposal Units

A large selection of heavy duty pumps for continuous duty under severe operating conditions.



Eastern condensate units are available for normal or high temperature operation. Completely automatic and foolproof.



Send for full information . . .

Eastern INDUSTRIES, INC.

296 Elm St., New Haven, Conn.

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NO MORE FREEZE-UPS of expansion valves or capillary tubes!

ICE-X works like magic
SERVICEMEN SAY: "ICE-X IS GREAT!"



When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy . . . ICE-X is non-corrosive—harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems . . . Order from your jobber. If no jobber, order direct.



Service doesn't falter when it comes from Harry Alter

Jobbers: Ask for special offer!

The HARRY ALTER CO.

Exclusive ICE-X Distributor

1728 S. Michigan Ave. Chicago 16, Illinois

Circle No. 76 on Reader Service Card
and AIR CONDITIONING • JANUARY, 1954

IT MAY BE
"Lovely To Look At"



But If The Wiring
Fails . . . So Does Your
Reputation



Be Sure . . . Demand UNILECTRIC Wiring Systems in the products you sell

For over 10 years UNILECTRIC has been "Wiring Headquarters" for the nation's electrical industry. Over 130 leading manufacturers of refrigeration and other electrical appliances protect their products with UNILECTRIC Wiring Systems. Be sure of dependable performance in the products you sell by demanding UNILECTRIC Wiring Systems.

There is only ONE
Standard of Quality at
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This intricate wiring harness for a jet auto pilot must meet the most rigid specifications. A pilot's life and perhaps a major battle depend on it.



The same workmanship . . . the same standards of quality protect your product wiring and your product's reputation for dependability.

Today millions of UNILECTRIC Wiring Systems protect the performance of over 190 brands of appliances.

BE SURE
Make the
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Quality
Standard
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WIRING SYSTEMS

Manufactured by
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411 South 4th Street • Milwaukee, Wisconsin

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NOW...TRAP-DRI

gives you still greater protection

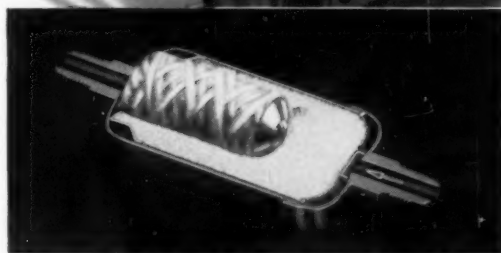
**With PA-400 silica gel added,
you get more water absorption—
new trouble-free refrigeration and
air-conditioning performance**

Yes, the facts prove popular Trap-Dri is even better than before for protecting refrigeration and air-conditioning systems! Now, with PA-400, new refrigeration-grade silica gel, it absorbs more water than ever. PA-400 reduces the moisture level of F12 to less than 10 ppm at temperatures as high as 160°F . . . protects refrigerants from moisture which causes freeze-ups, corrosion and copper plating in the refrigerator circuit. It's non-dusting . . . completely non-corrosive . . . is not affected by oil circulating in the system.

Combine these advantages with Trap-Dri's "depth filtration" cotton core, plus its proved ability to remove gummy deposits, scale, dirt and solder . . . and you have plenty of reasons why it pays to specify a dependable A-P Trap-Dri for all your jobs!

COMPARISON OF PA-400 AND COMPETITIVE DESICCANTS

Here's why TRAP-DRI is your best buy		FA-400	COMPETITIVE DESICCANTS		
			A	B	C
	High reserve capacity	✓	•	•	•
	Pre-attired	✓	•	•	•
	Low Pressure drop	✓	✓	✓	•
	Absorbs water physically instead of chemically	✓	•	✓	✓
	Non-dusting	✓	•	•	✓
	Absorbs acids	✓	•	✓	✓
	Will dry F12 to below 2 ppm at 120°F	✓	•	✓	✓



Note cotton bobbins which provides "depth filtration" and removes dirt particles as small as 5 microns in size.

A-P CONTROLS CORPORATION

2486 N. 32nd Street, Milwaukee 45, Wisconsin
In Canada: A-P Controls Corp., Ltd., Cooksville, Ont.

Thermostatic
Expansion
Valves

Automatic
Expansion
Valves

Filters
and
Driers

Solenoid
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... For air... liquids

... gases... refrigerants

Pressure-
Regulating
Valves

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Valves

Water-
Regulating
Valves

Pressure-
Limiting
Valves

DEPENDABLE Controls

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Did you need a secretary when you were sixteen?

Well, teenagers like this know the value of all the parts and personnel of a typical business organization. They're real businessmen and businesswomen on a small scale—forming their own company, floating stock, manufacturing their own products, keeping books, conducting advertising and promotion . . . and distributing dividends.

Long before they leave school, they'll be well acquainted with the business methods that have contributed to our prosperity. They'll have learned, first hand, what makes our economy tick—through Junior Achievement!

Sponsored by a long list of America's leading business firms, Junior Achievement gives young people a chance to experience—under the guidance of successful business men—the ins and outs of a commercial venture before they enter the adult business world. They're shown how enterprise and hard work turn into actual cash.

Because it's training in the ways of American free enterprise—because it's an answer to the youth-indoctrination programs of other ideologies—Junior Achievement is a positive step toward a bright economic future for this country.

COMMERCIAL REFRIGERATION AND AIR CONDITIONING MAGAZINE

BUILDING - THROUGH BUSINESS - FOR A BETTER AMERICA!

support **Junior Achievement**



Junior
Achievement
Week
January 31-
February 6, 1954

